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AS THE EDITOR SEES IT

A SHORT few weeks ago at the quarterly meeting of the Fats and Oils Industry Advisory Committee in Washington, a representative of the National Renderers Association pointed with indignation to the sharp price spread between coconut oil and tallow. (Tallow was then selling at 13c, while coconut oil was at a high of 26c.).

How quickly this situation has corrected itself is but one more example of the volatile character of the present government-dominated oil and fat market. Tallow roused itself from the doldrums about six weeks back, (while the export allocation totals for the current quarter were being discussed as a matter of fact) and jumped to sixteen and a half cents a pound. Coconut oil, which had been bid up along with the list of other edible oils, apparently in expectation of repeal of the penalty taxes on margarine, has suddenly dropped six cents a pound over the course of the past few weeks. Thus two soap raw materials which a few months back were one hundred percent apart in price, find themselves priced today more in keeping with their traditional relationship.

Soapers using the conventional coconut-tallow mixtures in their formulae must be kept jumping by these sudden and unpredictable shifts, and hard put to it to make sure that the most economical proportions are employed.

WITH the current political campaigns getting off to an early start as a result of the President's call for a special session of Congress, we suppose that accusations will shortly be flying freely back and forth in an attempt to fix responsibility for the high cost of living and the current unchecked inflationary trend. Before the situation becomes muddled by the claims and counterclaims that will be made, let us get our accusation in right now.

We hold responsible for the current inflationary trend the gang that insisted we could all have a thirty percent wage advance without any increase in prices. Remember the persuasive theories advanced back a few years ago to this effect? And where was the money to come from to pay these higher wages,—without advancing prices? Out of the swollen profits of business enterprises, of course!

This was definitely economic foolishness, and we have been forced by the hard facts to recognize it as such. Each round of wage advances has pushed prices higher, and another round, now being talked of, will only push prices still higher.

Maybe it's time now to stop kidding ourselves and each other. Maybe it's time for labor leaders and politicians to let workers in on the facts of life and to let them know that in the long run the only way we can boost our standard of living is by raising the productivity of our working force. But we fear that neither labor leaders nor politicians can be counted on to make such admissions,—particularly in an election year.

TO spur lagging soap sales, more and more manufacturers of soap are turning to merchandising methods that haven't been seen in ten years or more. The use of bait ranging from bath brushes, paring knives and aluminum ware to play circuses for kiddies for three soap wrappers or box tops plus a certain number of cents is being tried by many soap firms. Evidently the idea is working well since it is spreading and being repeated in a number of cases.

Others are turning to the "contest" plan, using "gimmicks" or "giveaways" as they are referred to by the advertising fraternity. This method of stimulating sales can be dangerous unless it is properly organized and handled. Already a number of law suits have cropped up against firms resorting to contests to boost sales and product interest and, in addition, an undercurrent of consumer ill will is being built up in certain instances.

A third method of promoting sales is the "buy one get one free or for a few additional cents." The "free" plan has merit, particularly where a new product is being introduced to the public. In the case of the older product, however, where the free offer is used to boost declining sales, the "giveaway" can be criticized for setting up in the consumer's mind the thought that the product she pays full price for must be overpriced if an extra quantity can be gotten for free or for a few extra cents.

The use of these merchandising schemes is legitimate and sometimes effective. They are, however, reminiscent of the depression days of the Thirties and one wonders about all the promises of a bright new world when one sees the rash of contest-premium giveaway promotions the industry has broken out with lately. Their effectiveness in reviving drooping sales curves cannot be denied; but for best results they should be handled by people who know what they are doing, and they must not be overdone. If these precepts are violated, such devices can well have a boomerang effect on sales.

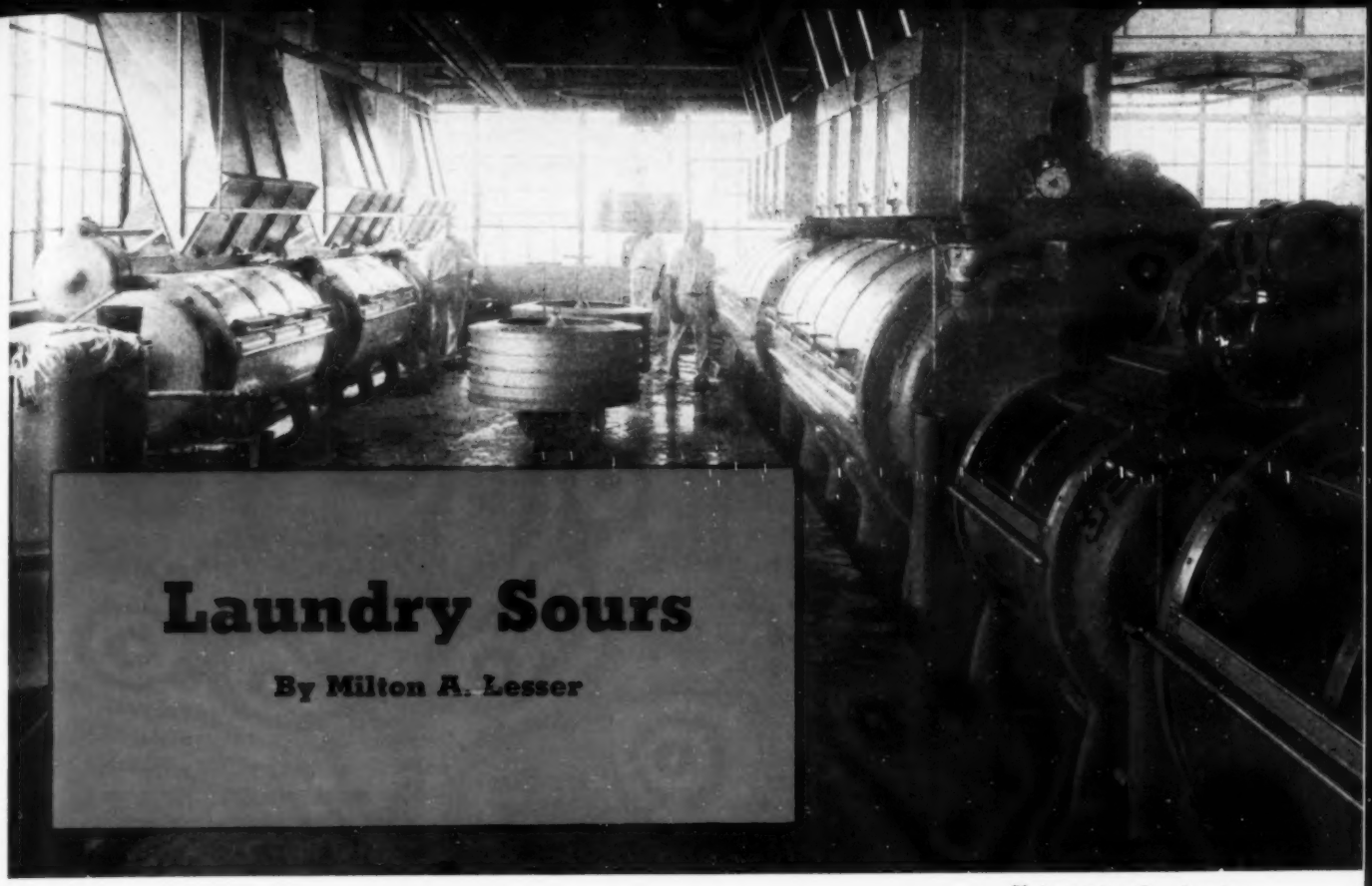
WHEN they introduced their new deodorant soap, Dial, to the retail market recently, Armour used a full-page scented advertisement in the *Chicago Tribune*. Over 250 pounds of perfuming oils were used to scent the regulation printing ink for the edition. The odor of the advertisement simulated that of the new toilet soap. Although this is not the first time that the *Tribune* or other newspapers and magazines have published perfumed advertisements,—these were used in the *Tribune* back in 1939 and by our affiliated publication, *The American Ink Maker* some twenty years ago,—this latest use by a large soaper to introduce a new toilet soap undoubtedly joins the list of "firsts."

In our opinion, this made an effective piece of advertising. But, by indirection, it points something of an accusing finger at the producers of perfuming materials. Why must such ideas which might open the way to many new outlets for perfuming compounds, originate with a large soaper, a florists' association, Sears-Roebuck, newspapers and others who have pioneered this field? Why has the perfuming materials industry, with one or two exceptions, practically ignored the idea? If outfits like Armour, Sears-Roebuck, and the *Chicago Tribune* find that it works, doesn't it have possibilities for exploitation by the perfuming materials people? With aromatics and essential oils at present in the doldrums, the idea might be worth thinking about.

AS new synthetic detergents have come on the market of late in apparently increasing numbers and plans for the launching of others are reported, we feel that the time is not far distant when a genuine competitive dogfight may develop. In fact, there are those who believe that such a condition already exists and that a real shake-out in the small-package detergent market may be in the offing. Already a number of the smaller firms who made a quick dollar during the days of the soap shortage, have taken to the woods. Mostly, they were marketers of various and sundry junky products which did little to enhance the reputation of synthetics as a class. We scarcely believe their retirement from the field will be any great loss.

Recent advent of new synthetic detergents has been chiefly by strong marketing organizations. The larger units are beginning to fan out and the established smaller companies may find the going rather rough over the next year or two, especially if the retail demand for soaps and detergents does not improve materially in the near future. The acid test of merchandising ability, product quality and price is, we feel, going to be applied more severely than ever in the months ahead. A general improvement in the quality of all detergents is likely to follow and, we believe, the relative proportion of consumption of detergents will continue to move upward.

That a shake-out of this market has been needed for a year or more has been apparent. It can clear the atmosphere and in the long run do the industry a service. But in the meantime, we have a hunch, this will in no way resemble a sunday-school picnic.



Laundry Sours

By Milton A. Lesser

Photo courtesy *Laundry Age*

IN order to do a thorough and efficient washing job, a number of procedures are used in the commercial laundry that are unfamiliar to most people outside of the industry. Among the most important of such procedures is the souring operation, which contributes materially toward the production of better laundering results.

Souring is so-called because of the acids used; sours being either acids or compounds which yield acids on solution in water. In the sequence of operations that constitute the usual washing formulas, the souring operation is applied after the rinsings. In the formulas for colors, it is usually the last operation, but with white goods souring is generally followed by bluing. A sour bath of the proper concentration must be run long enough and at the right temperature if thorough penetration of the fabrics and optimal results are to be obtained. In some cases souring and bluing are applied simultaneously with one preparation.

As remarked by Haynes, (1) souring is essentially a corrective process; one that exerts important influences upon the color of the washed and finished garment. Smither, (2) of the National Bureau of Standards, notes that a sour is used in laundry practice to neutralize any alkaline compounds remaining on the fabrics, decompose any oxidizing bleach left in the goods, dissolve certain stain-forming compounds, and to prevent starched goods from yellowing when ironed. He points out that when goods have been bleached too heavily with an oxidizing bleach, oxycellulose may be formed. Any alkali left in the fabric reacts with the oxycellulose, especially under the influence of the ironing temperatures of storage conditions, to form a yellow compound. In addition, alkali may accelerate any tendency of starches to yellow at ironing temperatures, and it will affect the tint of certain blues.

In somewhat more detail Johnson, (3) general manager of the American Institute of Laundering, explains that sours have come into extended use throughout the laundry industry for a number of reasons. These he gives as follows:

A. Sours neutralize alkalinity retained by the load from the washing process. This absorbed alkalinity is of two types: first, that resulting from the soap and alkaline builder retained by washed fabrics after normal rinsing and, secondly, the alkalinity of the softened water being used. (This is present as sodium bicarbonate after softening).

B. Sours prevent starched work from yellowing at the time of pressing due to the combined effect of elevated temperatures and unneutralized alkalinity upon the starch.

C. Sours decompose the residual hypochlorite (bleach) remaining through the four to five rinses normally used after sudsing.

D. Sours such as sodium acid fluoride, ammonium acid fluoride, and oxalic acid dissolve rust and other metallic stains.

E. Sours aid in the development of clear tints of sour blues.

F. Sours aid in the destruction of residual bacteria.

Bayley, (4) a Canadian authority on laundry products and processes, has aptly summarized the characteristics desired in a sour. In the first place, says he, a sour should not produce tendering on cotton

fabrics when small amounts are allowed to remain in them and are subjected to the temperature of the ironing process. The sour should have a reasonably high solubility and a high neutralizing value at the pH at which the souring operation is carried out. The reaction products formed when it neutralizes alkali should be completely soluble. The sour should assist in the development of the dyes used as laundry blues. It should be able to decompose insoluble deposits of calcium, magnesium and iron soaps. Finally, it should possess the ability to remove iron stains.

A similar, more detailed list of properties desired in a laundry sour has also been given by Snell. (5) He conceded, however, that while these characteristics are desired by the laundryman some of them are not obtainable in practice.

A variety of chemicals have been employed as laundry sours. According to a recent report by Johnson, (6) the most important souring agents are: acetic acid, oxalic acid, sodium acid fluoride (sodium bifluoride), ammonium acid fluoride, sodium silicofluoride, ammonium silicofluoride and zinc silicofluoride. Other agents have been used in the past and some of these chemicals are probably still being used to some small extent. Among these may be mentioned such compounds as formic acid, sodium acid sulfate (sodium bisulfate acid, potassium oxalate, ammonium chloride (sal ammoniac). Formic acid, which is highly satisfactory as a laundry sour, it is not popular with washmen because of its irritating effect on the skin. (1) Some efforts have been made to use sodium acid sulfate as a sour with precautions as to amounts and rinsing, but its tendency to attack vegetable fibers is a deterrent to its wide employment. (3)

Acetic acid, used in 56 per cent and 99 per cent (glacial) strengths, was probably the first compound to be used as a satisfactory laundry sour. Since it evaporates and does not dry in the fabric, acetic acid is one of the safest of all sours. (7) The acid was formerly much more used for the removal of hard water soaps, but it has lost much of this importance with the introducion of water-softening agents, like sodium hexametaphosphate. (4)

Although it is an effective alkali neutralizer and is often used in combination with other agents, some authorities (4, 8) are of the opinion that oxalic acid is not especially suitable for use as a laundry sour. It is corrosive and may cause tendering if allowed to dry into fabrics made from vegetable fibers, particularly when the fabrics are subjected to high temperatures, as in ironing. (7) Oxalic acid should not be used with colored or dyed goods.

IT is generally conceded that, as a group, the fluoride salts form the best laundry sours. The fluoride type of sours are harmless to cotton and linen. (2) Sodium acid fluoride is present in a number of proprietary sours and it is of value where there is a tendency for fabrics to become discolored by iron. Ammonium acid fluoride has properties similar to those of the acid salt. It is much more soluble, but it is also more expensive than the sodium compound. (7)

Sodium silicofluoride is used extensively as a laundry sour because it provides high neutralizing power at low cost. It is fairly insoluble, however, and is generally employed in the dry form. Ammonium silicofluoride has a greater neutralizing action than the corresponding sodium salt. Indeed, ammonium silicofluoride has the highest neutralizing value of any of the fluoride souring compounds. (9) It also has a much higher solubility than the sodium salt, which makes it convenient for use in stock solutions. Bayley (4) notes that while sodium silicofluoride is probably the cheapest sour to use, its limited solubility is a disadvantage; making it necessary to use the salt in the solid form or to employ a very large amount of a stock solution. He stresses that the use of sodium silicofluoride in the dry form may lead to under-souring in multiple-pocket machiness unless care is taken to allow time for sufficient penetration.

Although zinc silicofluoride has been available for a number of years, it is still considered something of a newcomer among souring agents. With a high neutralizing value—approaching that of ammonium silicofluoride—the zinc salt is said (9) to be the most soluble of the fluoride sours: being about twice as soluble as ammonium bifluoride. Because it does not harm delicate colors or fabrics, zinc silicofluoride is suitable for use on dark colors, fugitives, silks and woolens.

The zinc salt also provides an effective and persistent antibacterial action. (10) Very interesting and useful is its ability to kill moths and provide moth resistance. When used in suitable concentration to provide a pH between 4.0 and 4.5, zinc silicofluoride destroys moths and moth larvae and the articles treated with this sour will resist moths as long as they remain clean.

Although price is a very important consideration, the value of a souring compound depends in large measure on its alkali-neutralizing power and its solubility. Very pertinent, therefore, is Garvarick's (9) recent statement that zinc silicofluoride and ammonium silicofluoride are the best of all commercial products from the standpoint of solubility and neutralizing action. The comparative neutralizing power of the various souring agents is indicated in the following table, (8, 11) adapted from the original work of Gilmore (12); the relative souring power being based on 56 per cent acetic taken as unity:

Acetic acid, 56%	1.0
Acetic acid, glacial	1.8
Oxalic acid	1.7
Sodium acid fluoride	1.7

Sours are important in commercial laundering operations. Their function, properties and formulation are discussed by the author

Sour	*Hot Water*	*Cold Water*
Acetic acid (any concentration)	All proportions	All proportions
Oxalic acid	120 parts per 100	4.9 parts per 100
Sodium acid fluoride	Soluble	Soluble
Ammonium acid fluoride	Very soluble	Very soluble
Sodium silicofluoride	2.46 parts per 100	0.65 parts per 100
Ammonium silicofluoride	55.5 parts per 100	18.6 parts per 100

Ammonium acid fluoride	1.9
Sodium silicofluoride	2.3
Ammonium silicofluoride	2.4

Using the same basis (56 per cent acetic acid), one expert (13) in the field places the relative neutralizing power of zinc silicofluoride at 2.1.

Another method for rating sours is based on their ability to neutralize sodium bicarbonate. The following tabulation (3) gives the relative souring values of commonly used sours in terms of ounces of sodium bicarbonate neutralized per ounce of sour:

Acetic acid, 56%	0.78
Acetic acid, glacial	1.39
Oxalic acid	1.33
Sodium acid fluoride	1.35
Ammonium acid fluoride	1.47
Sodium silicofluoride	1.79
Ammonium silicofluoride	1.89

The solubility of the various sours in hot and cold water is given, in a general way, in the table at the top of this column: (11)

SOURS can be used either dry or in solution. Referring particularly to the more soluble fluorides, Bayley (4) has stated that the practice of preparing a stock solution of a sour is a good one. In his opinion, a solution made up to contain one pound of sour per gallon is suitable. However, the literature of commercial producers often recommends the addition of one-half pound of dry sour to each gallon of water. Zinc silicofluoride, ammonium silicofluoride and ammonium acid fluoride are especially suitable for making stock solutions. These are made in wooden, earthenware or rubber-lined containers. The solution should not be allowed to come in contact with iron.

In general, according to Snell, (5) a sour is used in 0.05 to 0.1 per cent concentration. Some manufacturers' directions for using sours are based on the weight of the goods being processed. For example, for a zinc silicofluoride type of sour, it is recommended that 2 ounces of the compound be used for the first hundred pounds of clothes and 1 ounce for each additional hundred pounds of clothes at suds level, with temperature between 120° and 140°F. on white work and not exceeding 100° F. on colored work. Where a stock solution is used (e. g. one-half pound of sour per gallon) one quart of solution is employed for the first hundred pounds of clothes and one pint for each additional hundred pounds. However, where such general directions are followed, it is considered advisable (7) to test the bath at the end of the soak in order to determine whether or not sufficient sour has been used.

There seems little doubt that for best results the requisite amount of sour should not be fixed but should be based on conditions actually existing in any particular plant. Under such circumstances, the quantity of sour to be used depends on the amount of alkali remaining on the load at the end of the last rinse and on the bicarbonate alkalinity of the water added to the wheel during the souring operation. (4) The amount which should be used will vary, of course, with the type of sour, but enough should be present to provide an optimal pH; generally in the range of 4.5 to 5.5. (8)

Snell's (5) examination of the sour used in a number of commercial laundries indicates that, in good practice, souring leaves a pH of 4.5. He found that when inadequate sour is used, the pH may pass 5.0, but with too much sour, values of pH 3.0 to 4.0 are obtained. He found that the efficiency of a given amount of souring agent can be measured by the amount of alkalinity it neutralizes before the pH of the solution rises to 4.5. How this influences the economy of using sours was strikingly illustrated by a number of determinations. It was found, for example, that the neutralizing value of sodium silicofluoride is almost twice as great at pH 4.5 as at pH 4.0.

Another aspect of the importance of pH been cited by other authorities. (4, 14) In their opinion a pH of 4.0 to 4.5 is required for shirt and collar work, a value of 4.6 to 5.4 for ordinary work finished in the laundry, and 5.4 to 6.4 for wet wash.

Of decided interest in this connection is a patent (15) decribing the production of sours which provide baths having a pH range of 6.9 to 6.5. This, it is claimed, is a particularly desirable range for bluing and finishing (ironing) fabrics. Suitable sours may be made from ammonium chloride mixed with small proportions of magnesium carbonate. Starch or a similar material may be added to prevent caking. A suitable quantity of oxalic acid or one of the fluoride sours may be included in the preparations to impart a slight degree of permanent acidity to the textiles.

Since pH plays such an important role with respect to both the efficiency and economy of laundry sours, the amounts of sour used must be carefully controlled by pH testing equipment. (3) For determining the pH of the sour bath. Haynes (1) suggests the use of color comparator or colorimeter. The indicator best adapted for control of the sour bath is methyl red, which has a pH range of 4.4 to 6.0. However, stable color standards are not always available, so that bromcresol green is often substituted. It has a pH-indicating range of 3.8 to 5.4.

ALTHOUGH souring is primarily concerned with neutralizing alkalinity, the antibacterial effect produced by this operation is considered of major importance. This is clearly indicated in Wright's (16) report on the progressive destruction of bacteria by a scientific laundry formula. He pointed out that after a load of clothes has been washed, many bacteria have been killed by

heat and by the bleaching operation; many more have been removed by flushing and detergent action, and the remainder subjected to a number of rinses which reduce the number of successive dilutions, so that the linen is left in a sanitary condition.

Laundry souring, says he, adds one more germicidal feature to the commercial laundry formula. Souring to a low pH of 4.5 to 5.0 destroys bacteria present in the clothes by a coagulating action. Thus the commercial laundry formula furnishes clean linen, which is not, in itself, conducive to bacterial growth. Wright cites a series of studies in which it was shown that souring furnished an extremely high degree of efficiency in bacterial count reduction without bleach. Souring thus takes on added importance in dark or light colored loads where high water temperatures and bleach are not used.

The ability to remove stains, particularly iron and rust stains, is a characteristic highly desired in a laundry sour. Oxalic acid is quite efficient for removing iron stains but its use is not encouraged in modern practice. Sodium acid fluoride and ammonium acid fluoride are of value where there is a tendency for fabrics to become discolored by iron. (7) It is recognized that these bifluorides have some rust removing properties when used in stronger solutions, but it is doubtful if they are effective in the concentrations and at the temperatures used in the laundry. (4)

It is now generally appreciated that routine souring does not remove rust stains. (1) Johnson (3) has pointed out that in order to remove metallic stains, such as rust, it is necessary to oversour, preferably hot, and then rinse back to remove the excess sour prior to "pulling" the load from the washer. He notes that special fluoride sours and hydrofluoric acid itself in special hard rubber containers are sold for stain removal, rather than for souring.

Nonetheless, a number of attempts have been made to improve the stain and rust removing properties of routine-use sours. For example, the following combination type of laundry sour has been recommended (17) because it removes iron stain by virtue of the formation of complex iron oxalate anions:

Oxalic acid	3 lb.
Water	3 gal.
Acetic acid (56%)	8½ lb.

Dissolve the oxalic acid in the hot water and, when cool, add the acetic acid. One pint of this sour is used per 200 pounds of goods.

Much more recently it was discovered (18) that the iron and other stain removing properties of the fluoride type sours could be greatly improved by the incorporation of various proportions of alkali polyphosphates of the type capable of sequestering calcium, magnesium, iron, copper and zinc ions. Particularly good results were obtained, for example, with a sour containing:

Sodium silicofluoride	70 per cent
Sodium bisulfate	20 " "
Sodium tetraphosphate	10 " "

When used in 0.05 per cent concentration, optical reflectivity tests showed that the employment of this sour resulted in an iron stain removal capacity of 53 per cent. Put another way, this mixture provided an increase of 55 per cent of the iron stain removal capacity of the most superior stain removing ingredient alone (sodium silicofluoride) of the mixture. That such a combination is safe to fabrics was shown by bursting strength loss tests.

A number of other illustrative examples were also given in the patent. For instance, the following mixture removed 55 per cent of the iron stains:

Sodium bifluoride	60 parts
Sodium tetraphosphate	10 "
Sodium bisulfate	30 parts

Sodium bisulfate or niter cake, an ingredient of the above and other types of sours, shows a tendency to harden and form lumps. According to another, more recent patent, (19) assigned to the same company as the above, this difficulty can be overcome by the addition of a small proportion of zinc oxide or zinc carbonate to a laundry sour containing the bisulfate. Thus hardening and caking can be prevented by adding 1 to 2.5 per cent of either of these zinc compounds to a sour consisting of:

Sodium tetraphosphate	5 per cent
Sodium bisulfate	50 " "
Sodium bifluoride	45 " "

Of related interest, from the standpoint of phosphate utilization, is patented laundry sour (20) in which sodium acid fluoride is stabilized by admixture with a small proportion (preferably 2 per cent) of sodium hexametaphosphate. This addition is said to greatly improve the keeping qualities of the sour and to give good control in souring practice.

IT is common practice among laundry supply producers to combine two or more agents in a sour in order to reduce costs, increase efficiency, improve stain removing power, or to provide a more rounded effect. Johnson (3) has observed that many proprietary sours are mixtures of varying proportions of sodium silicofluoride and acid fluoride or ammonium silicofluoride and acid fluoride.

In his report, Snell (5) mentions that a widely sold commercial sour, patented (21) some years ago, consists of:

Sodium silicofluorride	3.4 parts
Sodium acid fluoride	1.0 part

He used a very similar proprietary sour in his investigations; this comprising the same salts in a ratio of 3:1. The same combination was cited by Levitt (17) in his presentation of four typical silicofluoride-acid fluoride mixtures used as laundry sours. Aside from the formula already mentioned, the remaining formulas were as follows:

I.

Sodium acid fluoride	50 per cent
Sodium silicofluoride	50 " "

II.

Ammonium acid fluoride	25 per cent
Ammonium silicofluoride	75 " "

III.

Ammonium acid fluoride	50 per cent
Ammoniumm silicofluoride.	50 " "

Combinations of oxalic acid and sodium silicofluoride, in various proportions, have also been used on

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New Abrasive for Hand Soaps

By T. F. Clark*

WASTE products such as corncobs and nut shells have recently been finding many practical uses. About 200,000 tons of cobs find industrial use at present for the manufacture of the important chemical furfural and for soft-grit blasting, abrasive cleaning, polishing metals and glass, and a variety of other applications.†

Much of this development work has been carried on at the Northern Regional Research Laboratory, and recent investigations indicate that the grits of white corncobs may very well replace corn meal as an abrasive in powdered skin cleansers. Needless to say, corn meal is more valuable as a food in the present world situation than as an abrasive.

In considering possible replacements for corn meal as a hand soap abrasive, several factors have necessarily been taken into consideration—particle size and shape, color, water-solubles and extractives, bulk, and the ability of the material to act as an abrasive and to soften in water. With corn meal as a criterion, grit particles, preferably spherical or granular, should range in size from 20-to 80-mesh and should have color, brightness and bulk comparable to that of the corn meal. The abrasive should also be easily available and cheaper than corn meal.

The ordinary red corncob is being ground for a variety of purposes and grits from this cob, although having desirable characteristics as an abrasive in hand soap are not satisfactory; the red color is extracted from the cob particles in the presence of the alkaline soaps. It is possible to bleach this color but the cost is high and for this reason bleaching seems impracticable.

An investigation of the possibility of producing satisfactory grits from white cobs show that they are slightly more friable than red cobs and that they do not produce discoloration when mixed in soap powder. Further study was confined, therefore, to the preparation of abrasives from white cobs. Cobs from both white hybrid corn and popcorn are suitable for use. Frequently a reddish discoloration will be found in these cobs next to the pith, which is said to be caused by the action of microorganisms during the growth of the plant. Ordinarily, the amount of coloration even in these affected cobs does not appear to be serious enough to cause objectionable color in the soap, but

(*Turn to Page* 149)

†"Corncobs—Their Composition, Availability, Farm and Industrial Uses." Bureau of Agricultural and Industrial Chemistry Mimeographed Circular ACE-190 Revised. 1948. By E. C. Lathrop and J. H. Shollenberger.

*Northern Regional Research Laboratory, Peoria, Ill., one of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture.

DETERGENTS FOR CLEANING

By L. F. Hoyt
National Aniline Division,
Allied Chemical & Dye Corp.

TWO types of glass filament filled cells are widely used industrially under very different conditions in air-conditioning systems and on air compressors or ventilating systems. The nature of the soil which accumulates in the cells is correspondingly different.

Type I[1] capillary cells are filled with essentially parallel glass fibres of approximately 0.25 mm. diameter, held in a metal housing 20 inches square and eight inches deep. In use the cell is subjected to intermittent or constant sprays of water which flow concurrently with the air through the numerous interstices of capillary channels between the parallel strands of glass. In general, dirt and solid matter carried by the air are extracted from the air within the cell and are washed on through by the flow of water. Certain classes of airborne matter may, however, be of a greasy, colloidal or non-wettable character and tend to stick to the fibres within the cell. Any considerable accumulation of such matter within a cell will serve to catch and act as a bond for other solid matter and thus retard the flushing or self-cleaning action of the water passing through the cell.

A second cause for accumulated restriction within the capillary cells may arise from the deposition of lime and other scales on the glass filaments. This condition results from the application of very hard water or through the failure to provide "makeup" water, when evaporation occurs, at a rate adequate to maintain proper dilution of the water applied to the cells. This is, of course, especially important in cases where heat is applied to the water to produce saturation of the air at elevated temperatures.

Although the capillary cells operate for long periods without serious reduction in capacity[2] and although tremendous quantities of dirt may be flushed through the cells, eventually it is necessary to replace the cells or clean them.

Type II[3] glass mat filters are 20 x 25 inches and two inches thick. This type of filter, currently housed in a cardboard frame with metal braces, is used on the intake side of air compressors and ventilating fans and operates dry. Hence, the soil which accumulates in it tends to be more loosely adherent since it is not bonded with water scale, and consists of the dust prevalent in the area serviced.

The fine glass fibres in this filter are packed at random. The strands are across the air flow rather than parallel as in Type I.

Analyses of Scale and Dirt

THE following analyses illustrate the differences in the soil removed from the two types of glass filters: 1.

TYPE I CAPILLARY GLASS FIBRES

Photomicrographs 15 X

Scale Formation After Nine Months of Excessive Use

Clean New Fibres | **Moderate** | **Excessive**

Figure 1 | Figure 2 | Figure 3

Cleaned Glass Fibres 15 X

0.2 % Nacconol NR | **0.8 % Sodium Metasilicate** | **0.1 % Nacconol NR 0.8 % Sodium Metasilicate**

Figure 4 | Figure 5 | Figure 6

[1] Type I filter is exemplified by the capillary glass cell made by Air & Refrigeration Corp., New York, and used in their air-conditioning systems.

[2] The cells treated in the tests described had been in constant use 24 hours per day for nine months in an extremely dirty atmosphere. Large quantities of water were being evaporated from the cells frequently without adequate dilution.

[3] Type II Filter is represented by the "Dustop" filter made by Owens Corning Fiberglas Corp., Toledo.

AIR CONDITIONING FILTERS

Type I cell is from a unit servicing a rubber cementing room in a rubber factory, and it operated under very severe conditions of use to provide highly humidified air at an elevated temperature. 2. Type II filter is from the inlet duct of compressed air unit in the power house of a chemical plant.

Analysis of Dirt (Dry Basis)	*Type I*	*Type II*
1. Ethyl Ether Extract (oils)	1.3%	22.1%
2. Soluble in hot water	6.3	14.2
3. Additional soluble in hot dilute HCl	33.3	11.2
4. Loss on ignition of oil free, acid-insoluble residue	15.4	32.8
5. Acid insoluble inorganic residue	43.7	19.7
	100.0	100.0
6. Total Organic Matter (1+4)	16.7	54.9

Procedure for Cleaning

(a) *Laboratory Tests.* In an experimental cleaning of Type I capillary glass cells, sections of the clogged, scaly, glass fibres were "sliced" four inches square and eight inches long (the depth of the cell). These sections were immersed 2 inches in several test solutions, boiled with live steam for one-half hour and then thoroughly rinsed in clean running water. In the case of the Type II filter, sections of the two inch thick filters were cut four by eight inches and similarly boiled and rinsed.

(b) *Practical Cleaning of Glass Filter Cells.* Type I capillary glass cells, 20 x 20 x eight inches, were cleaned in pairs by immersing in a horizontal position on racks in a rectangular tank of 80 gallons capacity equipped with an open steam coil and overflow. The cells were boiled one-half hour in the preferred cleaning solution and rinsed thoroughly with a stream of cold water from a hose.

Results of Cleaning Experiments

(a) *Laboratory Cleaning Tests.* The most effective combination found for cleaning capillary glass Type I cells was a solution containing a small proportion of a synthetic detergent, "Nacconol† NR" ([1]) with a considerably larger proportion of sodium metasilicate. Solutions containing from 0.1 to 0.2 percent "Nacconol NR" and 0.4 to 1.8 percent sodium metasilicate were tried. Optimum results as regards removal of scale and dirt without excessive foaming were obtained by the use of 0.1 percent "Nacconol NR" and 0.8 percent sodium metasilicate.

Substitution of other alkaline salts and of sodium hexametaphosphate for sodium metasilicate failed to achieve the same degree of scale and dirt removal.

The use of acid cleaners to remove water scale naturally suggested itself. The metal housing of the cell precluded the use of strong mineral acids, but weaker acids such as boric and citric acids were tried in conjunction with the synthetic organic detergent to assist in penetration. These acids were ineffective in dissolving the silicious water scale which bonds the organic and inorganic dirt on the glass fibers.

In the case of Type II glass filters, operated dry, no removal of water scale is involved. Cleaning tests were made on sections of this type of filter with water only, with a solution of a synthetic organic detergent only, with sodium metasilicate only, and with a mixture of the two. The

TYPE II CAPILLARY GLASS FILTERS
Photomicrographs 15 X

New Fibres

Figure 7

Dirty Fibres
Discarded Cell

Figure 8

Cleaned with
Boiling Water Only

Figure 9

Cleaned Glass Fibres 15 X

0.2 % Nacconol NR

Figure 10

0.8 % Sodium
Metasilicate

Figure 11

0.1 % Nacconol NR
0.8 % Sodium
Metasilicate

Figure 12

combination of 0.1 percent "Nacconol NR" and 0.8 percent sodium metasilicate again proved very effective and restored the glass fibres to substantially their original cleanliness. Inspection of the washed masses of glass fibres shows a striking improvement in cleanliness of the portion washed with the combination of the two detergents as compared with similar masses of fibres from the same filter washed with either detergent separately.

Cleaning with a "Nacconol NR-sodium metasilicate solution does not affect the resinous material on the fibres of the Type II cell, but does remove the oily layer. This oil layer should, of course, be replaced before re-use to simulate the original condition of the cell.

It is interesting to note that the preferred combination of one part "Nacconol NR" to eight parts sodium metasilicate found best for cleaning both types of glass filters is very similar to the composition of 95 percent sodium metasilicate and 5 percent "Nacconol NR" found best by Morgan and Lankler (2) for the removal of oils from metals by still tank cleaning.

(b) *Practical Cleaning Tests.* The preferred method of cleaning glass filters, developed by laboratory tests, was translated into practice by successfully cleaning an accumulation of Type I capillary glass cells which had been discarded as useless after several months of service under very severe conditions. These cells were immersed, as above described, in a solution containing 10 ounces of "Nacconol NR" and 80 ounces of sodium metasilicate in 80 gallons (equivalent to concentrations of 0.1 percent and 0.8 percent, respectively, of water). The cells were boiled for one-half hour in this solution and thoroughly rinsed. A complete set of cleaned cells was placed in an air-conditioning unit. Draft gauge readings showed an air resistance equivalent to 0.40 inch of water, the same as with new cells in this unit, as compared with an inoperable air resistance of 1.05 inches for the clogged scaly cells before cleaning.

Photomicrographs show the condition of scaly or dirty glass fibres before and after cleaning, in comparison with new glass fibres of the same type. These photomicrographs were taken with a Zeiss Epi microscope at a magnification of 15X, using reflected light. The glass fibres from the Type I capillary cell, coated with a grayish scale were photographed against a black background; the Type II glass filter fibres were best photographed against a white background because of the jet black color of the adhering dirt.

It should be noted that the magnification in each case is 15X. The fibres, heavily coated with scale or dirt, of course have a greater diameter, and fewer of them can be included in the field than is the case with the new or practically clean fibres.

The degree to which a glass fibre cell can be restored to a useful condition by cleaning with a solution containing 0.8 percent sodium metasilicate and 0.1 percent "Nacconol NR" was further illustrated by allowing six liters of a hot solution of the above composition to flow slowly through one area of Type II cell during a 20-minute period. Since this cell is housed in a cardboard frame, it could not be treated by immersion and boiling. The cleaned area of the cell was photographed in two ways.

Figure 13 shows by direct lighting from the front the inlet surface of the cell with matted dirt on the glass fibres except for the cleaned area through which the solution was allowed to flow.

Figure 14 is a silhouette taken by placing a No. 2 "Photoflood" light directly behind the center of the cell. The bulk of the cell, filled with dirt, is opaque to this intense illumination, but the cleaned area readily permits the light to pass through.

Acknowledgements

The author wishes to acknowledge his indebtedness to L. H. Flett, director, New Products Division, National Aniline Division, Allied Chemical & Dye Corporation, who suggested this investigation and assisted in the preparation of this paper.

The author wishes also to

(*Turn to Page* 59)

FIGURE 13

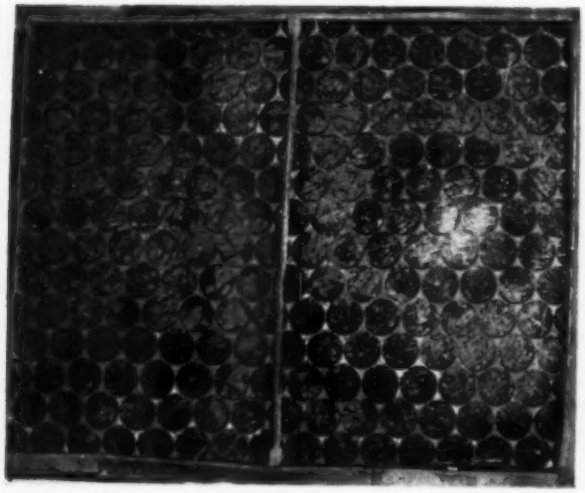
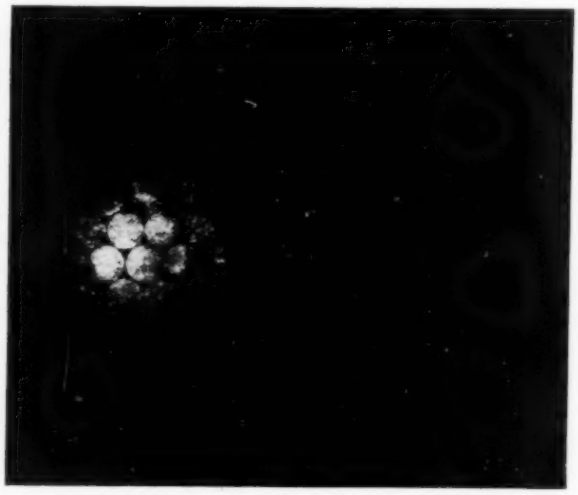


FIGURE 14



The Tallow Acids

By John R. Skeen
Market Research Dept.
Foster D. Snell, Inc.

NEARLY 25 percent of the tallow acids—red oil and stearic acid — produced in the last five years have been consumed in soap. This represents a sharp increase over the pre-war period at a time when new and expanded uses in other industries competed for the limited supply. As the war also created a demand for fatty acids from any source and so stimulated production, the tallow acids are now confronted for the first time with significant competition, especially for the soap market.

Of the variously purified fatty acids now commercially available, only those made from tallow have a history exceeding 20 years. The industry is an outgrowth of the production of candles. About 100 years ago, makers of tallow candles recognized the necessity of improving their product. This was accomplished by converting tallow into its acids and glycerine and separating the hard acids for incorporation into candles. The hard acids were called stearic acid, actually more palmitic than stearic. Red oil, consisting of as much as 70 percent oleic acid, was a by-product of almost no value. The practice of fat splitting grew and soon only the soap industry was a larger consumer of animal fats. The fats were obtained from cattle, sheep and hogs and were split very roughly into their component parts—stearic acid, red oil, glycerine and stearine pitch. Except for war periods, manufacturers have made almost all profits from stearic acid and the balance of the products generally sell at a loss.

Over the years, advances in the art have been made in releasing the acids from their glycerides, and separating the acids from the resulting mixture. The Twichell Process developed in 1898, was soon widely used for fat splitting. Early in the Twentieth Century, the batch autoclave and the alkali saponification process were

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THE TALLOW OILS: RED OIL & STEARIC ACID
Unit: 1000 pounds

	RED OIL[1]							STEARIC ACID[1]						
	Apparent Disappear.[2]	Production	Consumption in Soap [3]	Imports [4]	Exports	Stocks [5]	Price c/lb.[6]	Apparent Disappear.[2]	Production	Consumption in Soap [3]	Imports [7]	Exports	Stocks [5]	Price c/lb.[6]
1935	44,648	35,885	10,200[10]	1,487	513	5,455	8.2	29,778	23,939	—	5,507	419	5,706	13.5
6	41,567	43,505	9,500	410	511	7,292	8.6	33,352	30,966	—	1,817	485	4,652	12.4
7	45,690	47,866	10,900	229	182	9,515	10.3	35,237	33,261	—	1,465	391	3,750	14.9
8	34,817	33,175	8,700	36	194	7,715	7.9	25,596	24,940	—	788	294	3,588	13.5
9	49,600	48,657	12,900	—	1,129	6,637	7.1	32,097	33,674	—	1,278	1,252	5,191	13.9
40	49,985	53,359	13,500	—	2,034	7,977	6.7	38,814	41,392	—	561	3,296	5,034	12.9
1	74,116	77,578	20,800	2	2,266	9,175	9.7	46,250	56,248	—	102[8]	7,851[8]	7,283	15.5
2	72,324	76,191	21,000	101	2,152	10,991	11.8	44,034	52,029	—	—	6,411	8,867	17.8
3	83,949	87,209	28,282	1,419	1,396	14,274	12.4	53,135	59,214	8,645	—	5,572	9,374	18.2
4	79,221	78,553	25,955	1,540	1,632	13,514	12.2	55,156	55,974	7,035	—	3,376	6,816	18.5
5	76,920	74,139	25,943	—	1,367	9,366	12.5	50,468	54,207	6,307	506	2,622	8,439	18.6
6	80,778	82,599	28,177	—	826	8,371	14.0	62,038	64,468	6,936	13	2,844	8,038	20.3
7	69,716	72,055	19,669	—	2,223	8,255	24.7	56,484	61,049	6,650	220	4,876	7,947	34.3
8														
1Q	—	16,857	4,506	n.a.	n.a.	8,454	27.3	—	16,137	1,616	n.a.	n.a.	7,997	37.0
2Q	—	17,397[9]	n.a.	n.a.	n.a.	n.a.	n.a.	—	17,394[9]	n.a.	n.a.	n.a.	n.a.	n.a.

1 Production, Imports, Exports and Stocks, except as noted: *Animal & Vegetable Fats & Oils*, 1934-38, 1939-43; *Facts for Industry*, series M17-7-06; 1944-46; *Facts for Industry*, series M17-1, 1947-; all Bureau of the Census.
2 Production plus Imports less Exports plus Change in Stocks; imports after 1938 for red oil only approximately known and, therefore, apparent consumption is only approximate.
3 1943-46: *Facts for Industry*, series M17-7-06; 1947-: ibid., series M17-2.
4 After 1938, imports for consumption not accurately known as red oil was not separately classified; the values given for 1941-47 are semi-official as developed by Tariff Commission and other agencies.
5 End of period.
6 Bureau of Labor Statistics: 1935-38, N. Y.; 1939-, delivered; stearic acid, bags; oleic acid, distilled, 1942-, tanks.
7 Imports for consumption.
8 Tariff Commission.
9 April-May rate.
10 1935-42: unofficial and only roughly approximate, a digest of literature and trade opinion.

CANADIAN SOAP OUTPUT DOWN

PRODUCTION of soaps, washing compounds and cleaning preparations in Canada in 1946 rose three percent above output in the previous year and had a total worth of $38,274,818, as against $37,174,244. Production of soaps alone was smaller in 1946 than in 1945. The number of factories whose main products fall in the three classes listed above was greater by 16 in 1946 than a year earlier, and numbered 150. Both the number of employees and their salaries and wages were larger in 1946 than in 1945. The statistics listed above, and others, are contained in the annual report, "The Soaps, Washing Compounds and Cleaning Preparations Industry in Canada in 1946," issued annually by the Department of Trade and Commerce, Dominion Bureau of Statistics, Ottawa, Canada. It is available for 25 cents.

Statistical data are given in 14 tables that list: number of employees and their salaries and wages, by provinces; number of wage earners employed by month; amount of fuel and electricity used; types of power equipment and materials used in manufacturing; products made in 1945 and 1946; products made by provinces in 1946; sales of soap by firms in the soaps, washing compounds and cleaning preparations industry; total production in Canada of soaps, washing compounds and cleaning preparations. In addition, there is a directory of firms included in the soaps, washing compounds and cleaning preparations industry in 1946.

Employees of firms engaged in the manufacture of soaps, washing compounds and cleaning preparations in Canada in 1946 totaled 3,219, receiving salaries and wages amounting to $6,213,581. This compares with 3,210 employes in 1945 having

TOTAL PRODUCTION IN CANADA OF SOAPS, WASHING COMPOUNDS, AND CLEANING PREPARATIONS, 1945 and 1946

Item	1945 Quantity	1945 Selling value at works	1946 Quantity	1946 Selling value at works
	Pounds	$	Pounds	$
Hard Soaps—				
Bar laundry and household soaps—(a) Yellow	70,196,256	5,547,128	34,453,012	2,904,847
(b) White	12,794,826	912,735	13,588,437	954,239
Soap chips and flakes—				
(a) In household packages	24,576,714	2,930,029	23,317,815	2,989,082
(b) In bulk (except textile and mill)	20,016,734	1,715,199	20,543,263	1,840,816
Textile and mill soaps (including soap chips and flakes (x)	3,492,546	354,161	4,308,159	434,902
Toilet soaps (except liquid)	34,798,920	6,598,127	36,590,879	7,093,987
Polishing and scouring soaps	348,152	30,776	275,009	27,771
Castile soaps—(a) Boiled	570,441	59,317	274,817	28,910
(b) Cold process	972,393	123,975	1,071,458	162,327
Soap powders—(a) In household packages	77,648,847	7,762,999	73,958,325	7,474,016
(b) In bulk	7,644,497	584,550	6,657,752	544,697
Shaving soaps—(a) Creams—Lather type	903,425	929,820	987,898	968,433
Brushless type	154,309	152,682	143,221	148,162
(b) All other	409,513	260,087	468,711	480,302
All other hard soap	6,022,771	252,263	156,750	17,041
Liquid soaps—Toilet	3,332,555	443,185	4,378,641	570,066
Other	3,614,805	344,335	4,619,831	511,885
Soft soaps	5,794,627	335,596	5,799,110	375,250
TOTAL SOAPS	273,292,331	29,336,964	231,593,088	27,526,733
Ammonia powder	4,556,987	198,618	2,970,610	137,837
Javelle water and sodium hypochlorite	...	1,967,805	...	2,281,116
Other washing compounds	...	560,502	...	546,730
Hand cleaner	...	261,804	...	364,099
Cleaning or scouring powders, pastes and cakes	...	1,461,083	...	2,096,904
Drain pipe cleaner, toilet flush, etc.	...	184,968	...	255,802
Other cleaning preparations, including lye	...	1,154,513	...	1,228,435
Sal soda	6,939,170	100,283	5,561,350	94,375
Chloride of lime	3,478,425	117,014	3,255,534	121,103
Glycerine (xx)	3,509,989	345,888	2,021,854	266,346
Glycerine, refined	13,043,568	1,856,248	10,251,539	1,666,448

(x) Includes some liquid and soft soaps. (xx) Some of the crude glycerine production was sold to refiners in this industry and appears again in the figures for refined glycerine.

Note: The above figures represent the total Canadian production of the commodities listed, regardless of the industries in which produced. Data for 1946 are subject to slight revision on further examination of the individual reports. Synthetic detergents are not included.

IN 1946

salaries and wages of $5,873,944.

Total production of soaps in Canada in 1946 was 231,593,088 pounds, having a sales value at plants of $27,526,733, as against 273,292,331 pounds worth $29,336,964 in 1945. Sales of soaps in 1946 were 225,250,820 pounds, having a "final sales value" (retail) of $29,899,936.

Soap powders in household packages represent the most important type of soap produced and sold in Canada in 1946, as they were in 1945. In the former year, 73,958,325 pounds, having a plant value of $7,474,016 were produced, which is slightly less than twice as much soap as any other kind made. In 1945, 77,648,847 pounds of household soap powders were made, having a value of $7,762,999. Sales of powdered soaps in household packages in 1946 were reported to be 72,446,410 pounds worth at retail $9,110,389. Toilet soaps, not including liquid, were produced in 1946 at the rate of 36,590,879 pounds for the year, worth $7,093,987, which was an increase over the 34,798,920 pounds, valued at $6,598,127, turned out in 1945. Toilet soap sales in '46 were 32,634,247 pounds, having a final sales value of $6,608,759.

SALES OF SOAP BY FIRMS IN THE SOAPS, WASHING COMPOUNDS AND CLEANING PREPARATIONS INDUSTRY, 1946

	Quantity	Value of Sales (Final sales value)
Hard Soaps—		
Bar laundry and household soaps—		
(a) Yellow	41,392,786	3,614,451
(b) White	14,382,423	1,684,772
Soap chips and flakes—		
(a) In household packages	25,333,072	3,808,095
(b) In bulk (except textile)	18,529,607	1,879,759
Textile and mill soaps, all forms	3,553,485	379,143
Toilet soaps (except liquid)	32,634,247	6,608,759
Polishing and scouring soaps	239,541	28,038
Castile soaps—		
(a) Boiled	315,414	35,413
(b) Cold process	1,100,212	168,063
Soap powders—		
(a) In household packages	72,446,410	9,110,389
(b) In bulk (except textile)	6,599,070	755,572
Shaving soaps—		
(a) Creams (including brushless)	620,858	685,683
(b) All other	223,656	138,031
All other hard soap	306,540	85,572
Liquid soaps—Toilet	2,973,813	412,724
Other	2,253,568	325,621
Soft soaps	2,346,118	179,851
TOTAL SOAPS	225,250,820	29,899,936

Yellow bar laundry and household soaps occupied third place from the standpoint of production in 1946, having shown a sharp drop from 1945, when they were second largest type of soap produced. In 1946, 34,453,012 pounds worth $2,904,847 were made, as against 70,196,256 pounds, valued at $5,547,128 in the previous year. The sale of yellow bar laundry and household soaps in 1946 totaled 41,392,786 pounds having a final sales value of $3,614,451. The ending of the war was probably responsible for the big drop in production of yellow type bar laundry and household soaps, since this was the regulation soap of the armed forces.

Soap chips and flakes in household packages and in bulk, except textile and mill, stand fourth and fifth in production in 1946. In that year, 23,317,815 pounds of chips and flakes in household packages worth $2,989,282 were made in Canada, as compared with 24,576,714 pounds,

(*Turn to Page 167*)

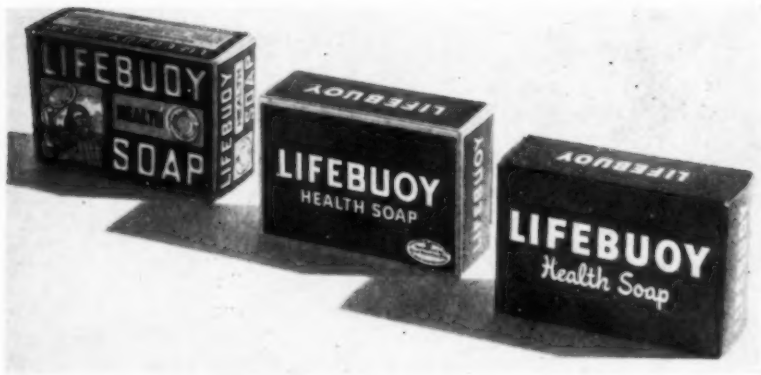
PRINCIPAL STATISTICS OF THE SOAPS, WASHING COMPOUNDS AND CLEANING PREPARATIONS INDUSTRY, 1937-1946

Year	Number of plants	Average number of employees	Salaries and wages	Cost of fuel and electricity at works	Cost of materials at works	Gross selling value of products at works
1937	101	2,284	2,836,208	396,694	11,253,146	19,693,888
1938	109	2,273	2,942,456	374,195	9,224,150	18,241,985
1939	110	2,406	3,142,213	376,984	8,171,373	20,145,072
1940	110	2,649	3,585,884	431,887	10,081,240	20,855,880
1941	116	3,080	4,599,815	508,558	12,633,351	25,713,565
1942	126	3,268	5,490,076	586,716	17,424,418	31,484,125
1943	134	3,220	5,853,026	661,730	16,625,211	31,491,328
1944	138	2,996	5,354,142	604,910	17,497,145	33,120,521
1945	134	3,210	5,873,994	649,525	18,366,330	37,174,244
1946	150	3,219	6,213,581	645,786	18,268,952	38,274,818
Per cent change 1946 from 1945	...	+0.3	+5.8	—0.6	—0.5	+3.0

Note: Profits or losses cannot be calculated from above figures as data are not available for general expense items, such as interest, rent, depreciation, taxes, insurance, advertising, etc.

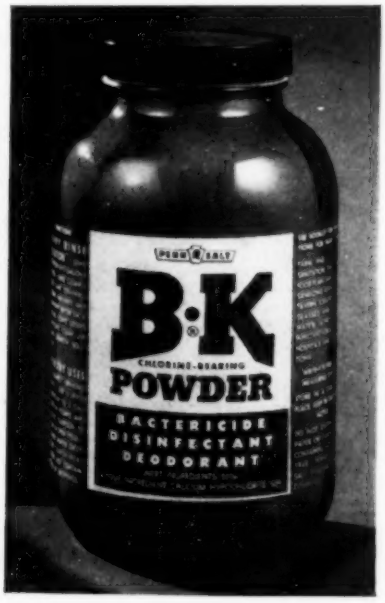
NEW PACKAGES *Products*

Right: "Drene" is now marketed in new package. Restyling of the Procter & Gamble Co., Cincinnati, shampoo package is part of program to redo all containers in the company's drug division. New styling results from consumer dealer survey.



Above: Lever Brother's oldest product celebrated its 50th birthday last month and put on a new package for the occasion. At extreme left is the original container. New "Lifebuoy" package at right replaced previous one shown in the center.

Below: Cream soap and bristle brush combination that forms part of the new "Pretty Package" line of Harriet Hubbard Ayer, Inc., New York. Set retails at $3.25. Soap in wooden bowl is superfatted.

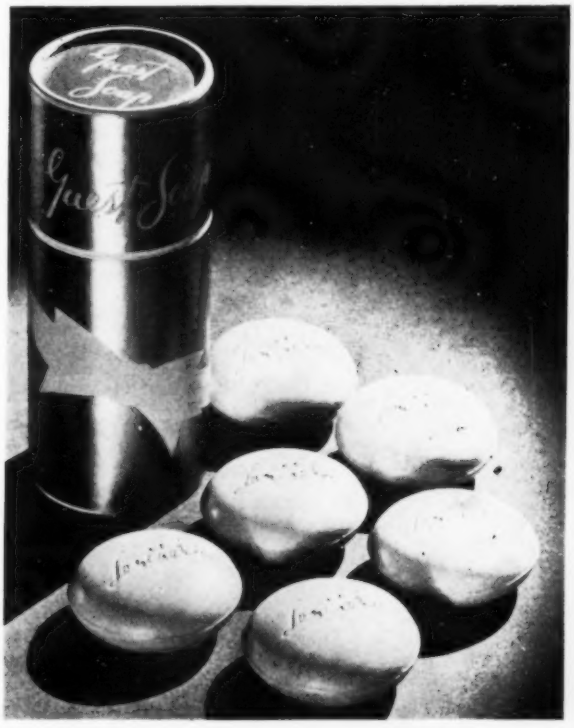


Right: New package for B-K bactericide, disinfectant and deodorant made by Pennsylvania Salt Mfg. Co., Philadelphia, features wide mouth amber "Duraglas" container of Owens-Illinois-Glass Co., Toledo. Closure is by Colt Firearms.

Below: "Dif" hand cleaner (made by Dif Corp., Garwood, N. J.) is now going to market in a redesigned, oval shape, swivel top can made by Canister Co. New can size is eight ounces. It replaces the former 10 ounce, round can shown at left. Red, white and blue color scheme remains, but label is simplified.

Above: Roger & Gallet, New York, have recently introduced their new lavender fragrance, "Lavande Extra Vieille," in the U. S. for the first time. Package above to retail for $1 contains two cakes of hand soap and a matching bottle of cologne.

Below: New "Guest Soap" by Lentheric, New York, is packaged in unusual cylindrical container that features luminuous lavender sheen and bow design.



Below: Newest addition to Colgate-Palmolive-Peet Co.'s line of synthetic detergents is "Fab," short for fabulous. It is a heavy duty type detergent, designed to supplement C-P-P's earlier product "Vel."

Chemicals

FOR THE PROCESS INDUSTRIES

REMEMBER — when Joseph Turner and Company could furnish *all* the Industrial Chemicals you wanted?

We don't know when those days will return, but we hope it will be soon.

We are proud to have been able to keep our regular accounts operating — dispite short supplies — and pledge our continued efforts.

There's still no substitute for the word experience.*

* Serving Industry Since 1861.

JOSEPH TURNER & CO

83 Exchange Place, Providence, R. I. RIDGEFIELD, NEW JERSEY 435 N. Michigan Ave., Chicago, Ill.

TRADE NEWS. . . .

Name Peet to AASGP Post

Roy W. Peet, who resigned in May as vice-president of Colgate-Palmolive-Peet Co., Jersey City, N. J.,

ROY W. PEET

has been elected manager of the Association of American Soap & Glycerine Producers by the board of directors of the Association, meeting in Chicago, July 22. In addition to his duties at Colgate-Palmolive-Peet Co., with which firm he had been identified for many years, Mr. Peet was chairman of the American Fat Salvage Committee, Inc.

J. Malcolm Miller, had been acting manager of the Soap Association since the resignation earlier this year of Roscoe Edlund, who had been manager for 23 years.

P & G Building in Calif.

Procter & Gamble Manufacturing Co., Cincinnati, recently awarded the contract for the construction of a standard tower packing building at 1601 W. Seventh St., Long Beach, Calif. The four-story and basement, steel frame and reinforced concrete structure will be 110 x 127 feet in area and will cost approximately $400,000. The building was designed by J. H. Davies of Long Beach and will be constructed by T. & S. Construction Engineers, 530 W. Sixth St., Los Angeles.

Lever Advertising Shifts

William J. Luedke, formerly of O'Cedar Corp., Chicago, recently joined the Pepsodent division of Lever Brothers Co., Cambridge, Mass., as assistant advertising manager. Another Lever change involves Lawrence R. Leach who has been made assistant advertising manager in charge of "Surf."

Turco to Build New Plant

Turco Products, Inc., Los Angeles, recently announced the acquisition of a site in McCook, Ill., near Chicago, for the construction of a new modern plant for manufacturing industrial cleaning compounds. In addition to its headquarters in Los Angeles, the company has manufacturing plants in Chicago, and Houston, Tex.

Babbitt Acquires "Glim"

"Glim," concentrated synthetic detergent in liquid form made by General Aniline and Film Corp., New York, was recently sold to B. T. Babbitt, Inc., New York. "Glim," which has been marketed in limited areas since its introduction two years ago, will continue to be manufactured by General Aniline, while Babbitt will market the product under provisions of a long term contract. B. T. Babbitt, Inc. acquires the "Glim" trade mark as part of the transaction. "Glim" is currently bottled four fluid ounces to sell for 35 cents. A bottle-top full of the product can do a complete dishwashing, according to package instructions.

Waverly Mfg. Co. Moves

Waverly Manufacturing Co., formerly of 2133 Orthodox St., recently moved to larger quarters at 1825 Wylie St., Philadelphia 30. The company's new telephone number is Stevenson 4-2025.

Elliott C-P-P Vice-Pres.

John L. Elliott, an executive of many years' standing for Colgate-Palmolive-Peet Co., Jersey City, N.J.,

JOHN L. ELLIOTT

has just been appointed vice-president in charge of western operations for the company, according to an announcement by E. H. Little, president. In his new post, Mr. Elliott succeeds B. W. Railey, who, earlier this year, was elected executive vice-president with headquarters in Jersey City.

Mr. Elliott will be stationed at the Colgate-Palmolive-Peet plant in Berkeley, Calif. Before the recent war, he was manager of the company's operations in Italy. Prior to his Italian assignment, he was general manager of Kirkman & Sons, Brooklyn, a division of Colgate.

F. S. Taggart Dead

Superintendent for the old Larkin Company soap and perfume factory in Buffalo, N. Y., for a quarter of a century before he retired in 1925, Frederick S. Taggart, 80, died July 12 in a nursing home after a year's illness. In 1900 he went to work for his uncle, the late John D. Larkin, Sr., founder of the Larkin company. A daughter and two sons survive.

ORONITE CHEMICAL COMPANY
REG. U. S. PAT. OFF.

THE NAME TO WATCH IN CHEMICALS

STABILITY IS AN ADVANTAGE OF D-40 DETERGENT

Here is a detergent that has a high degree of stability in acid or alkaline solutions. It is inherently an excellent cleaner and can be easily blended with other materials.

Greater foam heights . . . shorter wetting time . . . quick solubility in hard or soft water are additional advantages of this outstanding product.

Because of its excellent qualities and top performance D-40 Detergent is being used today in an ever increasing number of industrial applications. Washing operations are improved . . . better cleaners are being manufactured . . . great new markets are being developed.

It will pay you tomorrow to investigate D-40 today. Detailed information will be promptly furnished upon request. Contact the Oronite office nearest you.

TESTS PROVE HIGH STABILITY OF D-40

Actual tests show that the surface active properties of D-40 are not destroyed even after 24 hours in boiling sulfuric acid or sodium hydroxide. Results of tests are given below:

STABILITY TEST OF D-40 IN ACID AND ALKALI DISPERSIONS BOILING 24 HOURS

TEST	10% Sulfuric Acid	10% Sodium Hydroxide
Wetting time (10 oz. Cotton Duck) before Reflux	14.4 sec.	120.6 sec.
Wetting time (10 oz. Cotton Duck) after Reflux	18.4 sec.	156.9 sec.
Foaming (Ross-Miles) before Reflux	237 mm	184 mm
Foaming (Ross-Miles) after Reflux	235 mm	154 mm
Surface Tension before Reflux	29.0 dynes/cm	27.5 dynes/cm
Surface Tension after Reflux	30.0 dynes/cm	27.5 dynes/cm

The above tests are another typical example of how Oronite D-40 Detergent can add new values to other cleaners . . . help solve difficult washing problems.

REMEMBER ORONITE D-40 DETERGENT

ORONITE CHEMICAL COMPANY

38 SANSOME STREET, SAN FRANCISCO 4, CALIFORNIA
STANDARD OIL BLDG., LOS ANGELES 15, CALIFORNIA
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK
600 S. MICHIGAN AVENUE, CHICAGO 5, ILLINOIS

Wm. Price Joins Ultra

Ultra Chemical Works, Paterson, N. J., recently appointed William Price as sales representative in the Metropolitan New York area. Mr. Price was previously connected with Trans-World Airlines. In his new post he will work in the industrial maintenance chemicals division of the company and will work toward the introduction of synthetic detergents and related products to industries having large scale cleansing and deodorizing problems. He will call on various airlines, cargo ship operators and transport companies.

New Detergent

"Terjolate," a new synthetic detergent for household cleansing, was introduced recently by Rare Chemicals, Inc., Harrison, N. J. It is composed of sodium sulfate, sodium actodecanoate and N-diethanol-N-alkylamide, and is described as a soapless, sudsing liquid. It is supplied in pint bottles, and is recommended for general household cleaning including dish and clothes washing. "Terjolate" is designed to supplement the company's hypoallergenic skin detergents and will be distributed through drug drug trade channels.

Soap Premium: Trip to US

Miss Maria Monto Perez, 29 year old native of Sao Paulo, Brazil, arrived in New York last month for a 15 day stay in New York and Los Angeles, as a result of purchasing a cake of soap containing a gold star coupon entitling her to the trip or 50,000 cruzeros, worth approximately $2,500. Miss Perez bought six cakes of the soap and one of them contained the lucky coupon.

Shulton Ups Advertising

A 15 percent increase in its advertising budget for the coming Christmas season was announced recently by Shulton, Inc., New York. Beginning early in the Fall, a large-scale magazine advertising campaign will get under way. In all, there will be 48 advertisements for four groups of Shulton toiletries.

Carter to Ayer Post

The appointment of Alfred J. Carter as merchandising manager of Harriet Hubbard Ayer, New York,

ALFRED J. CARTER

was announced during July by Ralph P. Lewis, president. Previously, Mr. Carter, who at one time was an advertising executive for Procter & Gamble Co., Cincinnati, was with Schering Corp., New York, for three years as sales manager of "Artra" Cosmetics & Union Pharmaceutical, Inc.

P & G Man's Son Dies

John Anderson, 41, champion discus thrower of the 1932 Olympic Games in Los Angeles, and son of A. E. Anderson, former vice-president of Procter & Gamble Co., Cincinnati, died in Nanek, Alaska, July 11. He died as the result of an accident.

Canada's T. G. M. A. Meets

The 20th annual convention of the Canadian Toilet Goods Manufacturers Assn, was held June 24-27 at Manoir Richelieu, Murray Bay, Canada.

W. W. Watkins Dies

W. W. Watkins, for 42 years superintendent of the J. R. Watkins Co., died of a heart attack June 12. He was 72 years of age and had lived in Winona, Minn. since 1897. He was a cousin of J. R. Watkins founder of the company. Mr. Watkins retired from active work in 1940.

New Beach Product

Beach Soap Co., Lawrence, Mass., recently put on the market a new chemical compound under the trade name, "Fluorium," to be used in commercial laundering to impart a lustrous finish to fabrics. The material is claimed by the company to whiten fabrics and brighten colors that have dulled through use. "Fluorium" is a free flowing powder that is applied dry to the wash wheel. It is recommended for the first suds operation without any change in the formula. The product comes in drums of 50 and 100 pounds. Continued washing with the product is said to add to the brightness and luster of fabric.

Harry Marks Dies

Harry Marks, comptroller of Van Dyk & Co. and Summit Chemical Products Corp., Belleville, N. J., died July 10. He had been associated with the Van Dyk company for 20 years. An expert on accounting methods for chemical manufacturing companies, he was frequently retained by them in a consulting capacity. He is survived by his wife, two children and his father and mother.

Turco Cleaning Booklet

A new, 59-page booklet entitled, "Cleaning and Sanitation Manual for Food and Beverage Industries," covering 15 major food and beverage processing fields, was brought out recently by Turco Products, Inc., Los Angeles. The booklet is fully illustrated and in addition to telling what materials to use, describes how to use them to do the most efficient cleaning job.

Ira J. Shapiro Dies

Ira J. Shapiro, 51, president and founder of Ira J. Shapiro Co., New York drug concern bearing his name, died at his home, July 17. He was president of the Allied Wholesale Druggist Association and during the Thirties was a member of the fact-finding board for this industry in the NRA. He was later a code authority in the drug field. He leaves a wife and two sons.

P & G Man Joins Agency

Theodore Palmer, formerly radio and copy supervisor for Procter & Gamble Co., Cincinnati, has recently joined the advertising firm of Kastor, Farrell, Chesley & Clifford, Inc., New York.

DCAT Meets Sept. 24-25

The 58th annual meeting of the Drug, Chemical and Allied Trades Section of the New York Board of Trade will be held at Shawnee Inn, Shawnee-on-Delaware, Pa., Friday and Saturday, Sept. 23, 24 and 25. The meeting, which opens with an informal reception and buffet supper on Thursday evening, Sept. 23, closes with installation of officers following the banquet, Saturday night, Sept. 25. Although complete program details had not been arranged as we went to press, it was known that on Friday afternoon, Sept. 24, the presentation of annual reports and the election of a new executive committee were to take place. A golf tournament for both men and women has been arranged for Friday and Saturday mornings. Prizes, including the DCAT trophy, will be awarded. Registration fee for the meeting is $12.50. Reservations should be made directly with the hotel.

Frost to Advtg. Committee

Donald S. Frost, assistant advertising manager of Bristol-Myers Co., New York, was appointed to the Advertising Research Foundation's technical committee, it was announced recently.

Aids Freight Loss Drive

In an effort to reduce or eliminate rail freight loss and damage, the Union Pacific Railroad, Omaha, Nebr., recently put into operation a specially built and fitted railroad car to be used as a meeting place in various cities and towns on the line for employees handling freight. In addition to group discussions of the freight handling problem, employees will be shown two freight loss and damage prevention films: "Who Done It" and "Easy Does It."

Right: A new synthetic detergent, "Surf" for general household use introduced last month in 11 midwestern cities by Lever Brothers Co., Cambridge, Mass.

Lever Introduces "Surf"

"Surf," a new synthetic detergent for general household use was introduced recently by Lever Brothers Co., Cambridge, Mass., in 11 midwestern cities. Further distribution is planned as soon as production permits, according to the company. A special introductory sale by which two, 18-ounce boxes of "Surf" can be purchased for the regular retail price (32-35 cents) plus five cents, was announced by Lever. The new detergent is designed to supplement "Breeze" another recently introduced synthetic detergent of Lever Brothers which is offered primarily for washing of fine fabrics and dishes. "Surf" is more of an all-purpose type detergent particularly adapted for cleaning heavy, dirty washes, dishes, glassware and for general household use.

"Surf" will be packaged in tan and blue, cardboard containers, 24 packages to a case. Its introduction will be backed by an intensive advertising campaign, with a series of large space advertisements to appear in 66 newspapers within the marketing areas of the 11 introductory cities. Point-of-purchase advertising material and spot radio announcements will coordinate the newspaper advertising.

Cities where "Surf" was to have initial introduction, beginning around July 26, include: Rockford, Galesburg, Peoria, Springfield, Danville, and Joliet, Ill.; Madison, Oshkosh, and Green Bay, Wis.; Indianapolis and Muncie, Ind.

Slawter in New CSA Post

Paul B. Slawter, Jr. of the House of J. Hayden Twiss, New York advertising agency, has been appointed administrative assistant of the Salesmen's Association of the American Chemical Industry, Inc. The newly created post has a salary attached to it, and is designed to relieve the secretary and treasurer of the greatly increased work involved in preparing for the functions held by the Association.

Lukens Executive Retires

F. H. Gordon, vice-president of Lukens Steel Co., Coatesville, Pa., retired recently after having been with the company for 53 years. A dinner in his honor was given at the Coatesville Country Club by close business associates and executives of Lukens. He was elected a vice-president on Jan. 28, 1928, a post which he held until his retirement.

Turner Advances Henry

John F. Henry, vice-president and district sales manager of Joseph Turner & Co., Ridgefield, N. J., was appointed acting director of sales for the East on all chemical items, it was announced recently.

Emulsol Names Klein

Emulsol Corp., Chicago, recently appointed Eugene L. Klein of Vulcan Sales Co., Kansas City Mo., as their representative in Iowa and Nebraska for the sale of detergents, emulsifiers, quaternary ammonium bases and other surface active developments.

"Duodex" to Carman

"Duodex," new carpet antiseptic developed by the laboratories of Nuodex Products Co., Elizabeth, N. J., will be distributed exclusively by Carman & Co., New York laundry and cleaning trade suppliers, according to a recent joint announcement by both companies. When added to regular carpet cleaning solutions the product is said to permit thorough shampooing of rugs and upholstery without fear of the development of mildew, dry-rot and musty odors. It is said not to affect sudsing, cleaning or any other characteristic of the shampoo. "Duodex" is a non-toxic, non-irritating, concentrated liquid antiseptic that dissolves easily in rug shampoos of the soap or synthetic detergent variety. It is recommended for on-location cleaning, where penetration is sometimes a problem. For plant cleaners, it is claimed to provide protection for sizing solutions by preventing souring of the size when in stock and controlling its decomposition when applied to the rug. "Duodex" may also be used in plant sanitation as an antiseptic wash for walls, floors, ceilings, etc. to stop mildew and musty odor.

Visits P & S Home Office

Martin J. Daly, recently appointed sales representative of the Chicago branch of Polak & Schwarz, Inc., New York, spent a week during July at the company's headquarters in New York, where he attended several sales conferences, inspected the research laboratories and manufacturing plant and spent some time in each of the firm's departments.

Rheem Advances Two

The appointment of Clifford V. Coons as vice-president in charge of sales and G. M. Greenwood as vice-president and treasurer of Rheem Manufacturing Co., New York, was announced during July. Mr. Coons has been with the company since 1934 and since 1945 has been in charge of sales. Joining the firm in 1941 as treasurer, Mr. Greenwood was made a member of the board of directors later that same year.

Edmond Naugatuck Mgr.

Harold J. Edmond, since 1941 manager of the Chicago branch of Naugatuck Aromatics division, United

HAROLD J. EDMOND

States Rubber Co., New York, was recently appointed manager of the division with headquarters in New York. He succeeds M. G. Couderchet, who is returning to the staff of Bruno Court, Grasse, France, as sales manager. Mr. Edmond has been with the division since 1933. In 1936 he was transferred to Chicago, after working in the company's plant at Naugatuck, Conn., and the New York office. He is a graduate of Purdue University, with a B.S. degree in chemical engineering, class of 1931.

Mr. Couderchet was export manager for Bruno Court until 1934, when Naugatuck was named U.S. representative for the firm. In that year Mr. Couderchet came to the U.S. to be sales representative for Naugatuck. He became manager of the Naugatuck Aromatics division when it was formed in 1938. The division will continue to act as distributor of Bruno Court's line of essential oils and natural extractions.

Cohen Glyco Chief Chemist

Samuel Cohen, formerly senior chemist for Glyco Products Co., Brooklyn, was recently appointed chief chemist of the Brooklyn research laboratories until they are transferred to Natrium, W. Va. He will then assume the duties of liasion and coordination between the research and production departments and pilot plant.

Smith Heads Monsanto, Ltd.

Arnold H. Smith, vice-president and a member of the board since Jan. 1, 1948, has been elected president of Monsanto (Canada), Ltd., Montreal, to succeed Leo G. Ryan, who continues as chairman of the board, it was announced recently by William M. Rand, president of Monsanto Chemical Co., St. Louis. L. E. Ryan, a director and vice-president in charge of manufacturing and development of the Canadian company, which was reorganized in 1946, has been elected first vice-president.

Honor WHC Man, Wife

John Weisensee of Welch, Holmes & Clark Co., New York, and his wife are celebrating their golden wedding anniversary this year and will be honored with the presentation of golden wedding rings from Grover Whalen in connection with the celebration of the golden jubilee of the city of New York. Mr. Weisensee is head of the shipping department of Welch, Holme & Clark Co., and has been with the company for more than 40 years. The company itself is observing its 110th year in 1948.

A. A. Wasserscheid Retires

August A. Wasserscheid, vice-president of Mallinckrodt Chemical Works, St. Louis, and manager of its eastern division in New York since 1913, retired on July 1. A vice-president since 1931, he had been with the firm since 1893. Mr. Wasserscheid is a registered pharmacist, a graduate of the New York College of Pharmacy. He also attended City College of New York and was a trustee of its pharmacy school in recent years.

Tube Co. Names Agent

White Metal Manufacturing Co., Hoboken, N. J. manufacturers of collapsible tubes for dentrifrices and similar products, recently appointed Clifford L. Iorns Co., St. Louis, as its exclusive representative in Missouri, Southern Illinois, and Western Tennessee.

"Possibly Hardesty has the answer"

Hardesty has "come up with the right one" for so many industries that it's more than likely they can blast the bottlenecks confronting your plant. Hardesty's consultants aggregate decades of *pioneering* experience in the fatty acid field. This experience can enrich *your* process; this know-how can be put to work for you.

Hardesty fatty acids are *researched* for performance . . . researched to give you high quality products of great versatility. Hardesty research does not end there, however — it's an aggressive weapon, waiting to unsnarl any tangles in your process.

If you want to see imaginative research, scientifically executed, see W. C. Hardesty, 41 East 42 Street, New York 17. Or phone Murray Hill 2-1920.

Red Oil Glycerine Stearic Acid White Oleine Stearine Pitch
Hydrogenated Fatty Acids Animal and Vegetable Distilled Fatty Acids

HARDESTY PRODUCTS ARE INDUSTRY'S KEYSTONE

W. C. Hardesty Company

41 EAST 42nd ST., NEW YORK 17

FACTORIES: DOVER, OHIO
LOS ANGELES, CALIF. • TORONTO, CAN.

Play Circus Lever Premium

Lever Brothers Co., Cambridge, Mass., and Ringling Bros. and Barnum & Bailey, Sarasota, Fla. circus producers, have collaborated to make available a 35-piece miniature circus as a premium to be offered during July, August and September, it was announced recently. The play circus, said to be the first and only miniature of the Ringling Bros. Barnum & Bailey Combined Shows, is printed in four colors, die cut, ready to assemble.

Advertising by both Lever and Ringling Bros. and Barnum & Bailey will promote the premium offer in the newspapers, on the air and in national magazines. Circus billboards and the circus program will carry tie-in copy featuring the premium offer.

Spread between the legs of Lou Jacobs, famous Ringling Bros. and Barnum & Bailey circus clown is new, 35-piece miniature play circus set, new premium being offered by Lever Brothers Co., Cambridge, Mass. Center is Frederic A. Schneller, general merchandising manager of Lever and Henry Ringling North, Ringling vice-president, is at right.

Aroscent Reorganizes

Reorganization of Aroscent, Inc., Brooklyn, as a subsidiary of Davis & Lawrence Co., Dobbs Ferry, N. Y., effective July 1, was announced recently. Davis & Lawrence Co. have been named as export representatives for all Aroscent products. Aroscent manufactures aromatic chemicals, perfume and flavor compounds and acts as a dealer in essential oils. The offices and laboratories of Aroscent will remain at the present address in Brooklyn until further notice.

The following officers were elected by the board of directors of newly reorganized Aroscent, Inc.: G. D. Lawrence, president; H. J. Janovsky, vice-president; J. D. Lynam, secretary and H. Bjerke, treasurer.

Webber & Smith Dissolve

Dissolution of the corporation of Webber & Smith, Inc., New York, manufacturers' representatives took effect July 1. The business will be carried on under the name Robert I. Webber Co. at the same address, 52 Vanderbilt Ave.

Goodyear Chemical Unit

Goodyear Tire & Rubber Co., Akron, O., recently announced the formation of a new chemical division. Herman R. Thies, manager of the plastics and coatings department, will head the new division. He will be assisted by W. H. Aiken.

New Phillips Chemical Co.

Formation of a wholly-owned subsidiary, Phillips Chemical Co., was announced recently by Phillips Petroleum Co., Bartlesville, Okla. The new company will take over the operations formerly handled by another subsidiary, Philtex Chemical Co., and expand its chemical line. Executive personnel of the new company includes: Frank Phillips, chairman; K. S. Adams, president; Ross W. Thomas, executive vice-president; Paul Endacott, Don Emery, G. G. Oberfell and R. C. Jopling, vice-presidents. G. W. McCullough has been appointed vice-president and general manager.

Bouillette Joins Givaudan

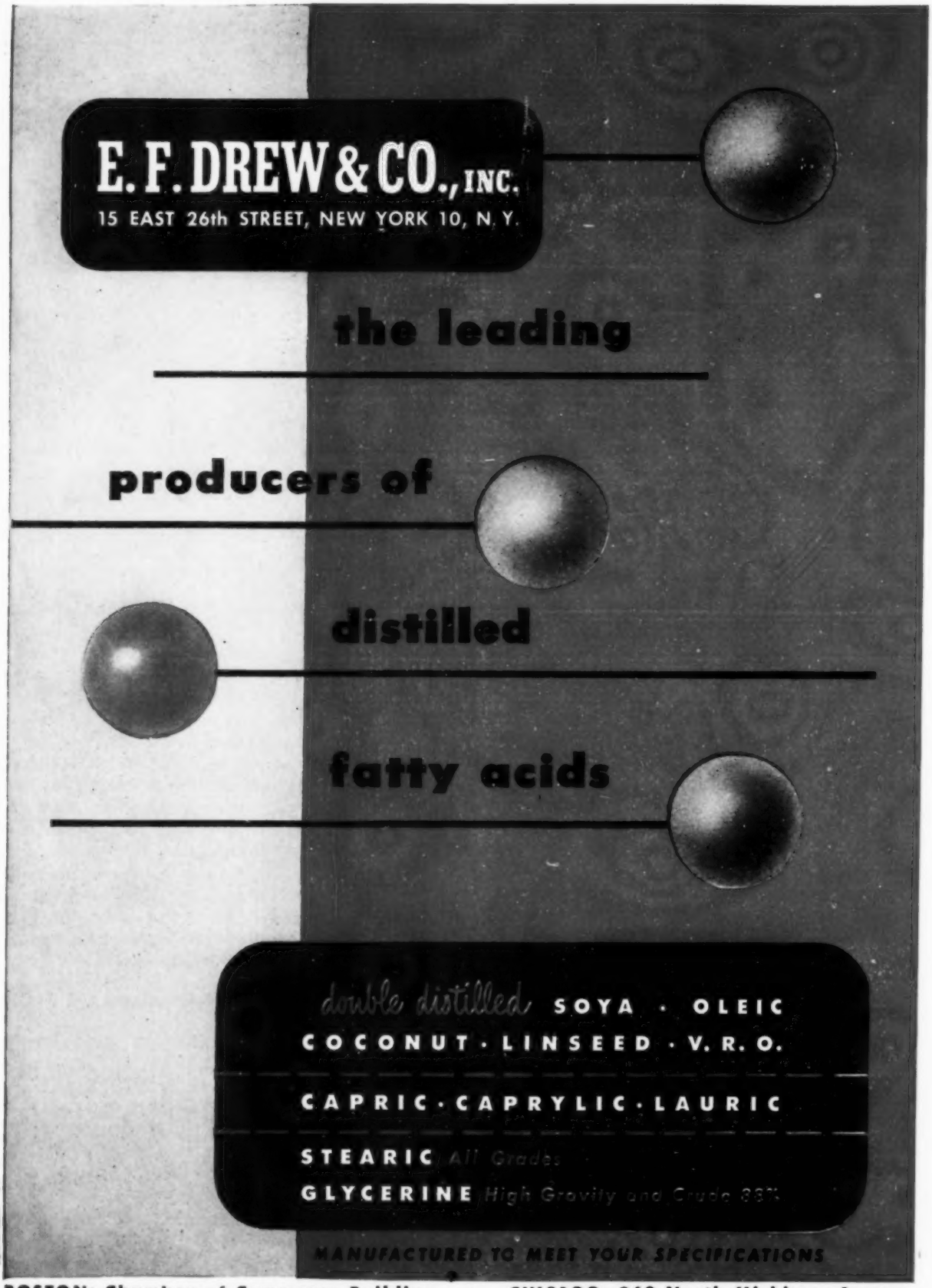
Pierre Bouillette, who has been active in the perfume and cosmetic industries in France, the U.S. and Brazil for two decades, has recently returned to Givaudan-Delawanna, Inc., New York, to engage in sales promotion of the company's line of specialties and associated products. In addition, he will act in a technical sales service capacity.

Sealing Material Booklet

A new booklet, "101 Ways to Use 'Cel-O-Seal' Cellulose Bands" was published recently by E. I. du Pont de Nemours & Co., Wilmington, Del. The cellulose bands, which are available in a wide range of colors and in many color combinations, transparent or opaque, it is claimed, extend the shelf life of many products. The bands prevent contamination, tampering, evaporation and leakage. Illustrated examples of "Cel-O-Seal" applications to various products and numerous miscellaneous uses are shown in the booklet, which is available through the "Cel-O-Seal" Section of the company.

Eberbach Announcer Is Out

The development of chemical porcelain is discussed in the latest issue of the Eberbach *Announcer*, house magazine of Eberbach & Son Co., Ann Arbor, Mich. In addition, the current issue illustrates and describes a number of new pieces of scientific equipment, including the "Larrabee" titrater and the new, triple purpose Hohwald specific gravity chain balance. Copies of the *Announcer* are available by writing the firm.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GLYCERINE High Gravity and Crude 88%
MANUFACTURED TO MEET YOUR SPECIFICATIONS

BOSTON: Chamber of Commerce Building • CHICAGO: 360 North Michigan Avenue

"Kolynos" Plant Moving

The New Haven, Conn., branch of Whitehall Pharmacal Co., New York, successor to Kolynos Co. and manufacturer of "Kolynos" tooth paste and powder, will be moved to Elkhart, Ind., within the next three months, it was announced recently by the company. Other plants in Lowell, Mass., and Knoxville, Tenn., will also be moved to Elkhart, where a modern building and warehouse on a railroad siding will house the firm's manufacturing facilities.

F. J. Henning Dies at 45

Fred J. Henning, 45, field sales representative of Philadelphia Quartz Co., Philadelphia, died July 9 at Oak Park, Ill., after a brief illness. He had been with the company since 1930, when he joined the firm as a sales representative with headquarters at the company's Chicago sales office. He is survived by his wife and four children.

Dreyer Names Justesen

P. R. Dreyer Inc., New York, recently announced the appointment of Paul Justesen, 1046 S. Olive St., Los Angeles, as their representative on the West Coast.

Logcher MM&R Export Mgr.

Dr. Henri F. Logcher recently joined Magnus, Mabee & Reynard, Inc., New York, as export manager. A

DR. HENRI LOGCHER

native of the Netherlands, where he received his PhD in chemistry from the Technical University of Delft, Dr. Logcher was previously sales manager of the household and chemical divisions of Home Products International, Ltd., the export company for American Home Products Corp., New York. In his new post, Dr. Logcher succeeds Ferdinand G. Robin, who died recently.

Fills New Pepsodent Post

Charles N. Crittenton, formerly assistant sales manager of the toilet articles division of Colgate-Palmolive-Peet Co., Jersey City, N. J., was recently appointed to the newly created post of general sales manager of the Pepsodent division, Lever Brothers Co., Chicago. He will work under the supervision of George R. Stege, Jr., director of sales.

Uniform Soiled Fabrics

United States Testing Co., Hoboken, N. J., announced recently that it is now producing standard soiled fabrics of cotton, wool, acetate, viscose and perhaps nylon for use in evaluating detergents and the efficiency of washing machines. The company reports that it has found that one of the great variations in results of tests of both detergents and machines was due to the many methods used in preparing soiled fabrics. Only slight differences in the constituents of standard soiled formula make wide differences in the results obtained.

C-P-P, Ltd. Names Hill

Frank W. Hill, previously western divisional sales manager of Colgate-Palmolive-Peet Co., Ltd., Montreal, was recently advanced to the position of acting general sales manager, following the appointment of R. A. Hart to the foreign division of the company. Mr. Hill is a veteran of 20 years' standing in sales work in the grocery and drug retail fields.

"Vel" Beauty Bar, new synthetic detergent in bar form, made by Colgate-Palmolive Peet Co., Jersey City, N. J., has been tested in a number of cities since its recent introduction. Believed to be first cake synthetic.

DETERGENTS

(*From Page* 44)

acknowledge the valuable assistance of Dr. W. A. Schlesinger and D. C. Lindsay of Air & Refrigeration Corp., New York and R. M. Lantry of Fisk Tire Division, U.S. Rubber Co., Chicopee Falls, Mass. in providing materials and facilities for tests conducted on capillary glass filters.

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Your Sales Increase With These Quality Products

of Proven Ability from Pecks

We stand ready to meet your regular needs for soaps, detergents and related items with our completely modern plant and comprehensive manufacturing ability. This ability can be fitted to your special needs and problems. Check the items below in which you are interested, and we shall forward the information concerning them to you. *Send this coupon now.*

Peck's Products Company 610 E. Clarence Ave., St. Louis 15, Mo.

SS1
City ..... State ..... Name .....

Company ..... Address .....

Dear Sirs: Please send me information concerning the items checked below.

- ☐ **Keep–** the all purpose cleaner.
- ☐ **Hospital Soaps–** for every hospital use and need.
- ☐ **Liquid Hand Soap–** from toilet to mechanics soap.
- ☐ **Vegetable Oil Bases–** finest quality soap for mixing purposes.
- ☐ **Coconut Oil Bases–** mildest soap of many uses.
- ☐ **Scrub Soaps–** from mild to heavy duty products.
- ☐ **Deodorants–** drip fluid and fine theater sprays.
- ☐ **Deodorant Blocks–** in 3, 4, 16 and 24 ounce blocks.
- ☐ **Powdered Detergents** for laundry—for car wash.
- ☐ **Dishwashing Compounds–** hand and machine types.
- ☐ **Floor Seals–** wax, oil and other treatments.
- ☐ **Nu-Sheen–** upholstery and rug shampoo.
- ☐ **Disinfectants–** pine oil, synthetic and fragrant types.
- ☐ **Liquid Detergents** for bars, dishwashing and general uses.

Please include information on .....

Modern Production for Modern Cleaning Since 1918

BIDS AND AWARDS

Laundry Soap Bids

The following bids were received on 30,000 pounds of laundry soap in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.: Colgate-Palmolive-Peet Co., Jersey City, N. J., fob New York, 9.66 cents, Chicago, 10 cents, Atlanta 10.25 cents, Kansas City, 9.66 cents and San Francisco, 9.66 cents; Standard Soap Co. of Camden (N. J.), fob Camden, 9 cents, New York, 9.55 cents, Chicago, 10.4 cents, Atlanta, 10.2 cents, San Francisco, 13.68 cents, Kansas City, 11.03 cents; Tennessee Soap Co., Memphis, fob Memphis 8.86 cents, New York, 10.69 cents, Chicago, 9.92 cents, Atlanta, 9.96 cents, Kansas City, 10.2 cents and San Francisco, 11.-96 cents; Armour & Co., Chicago, fob Babbitt, N. J., 9.16 cents, Chicago, 10.43 cents, Atlanta, 10.5 cents, Kansas City, 11.67 cents, San Francisco, 13.82 cents; Gillam Soap Works, Fort Worth Tex., fob Fort Worth, 8 cents; Swift & Co., Chicago, fob E. Cambridge, Mass., 9.3 cents, Chicago, 9.9 cents, New York, 9.8 cents, Chicago, 10.1 cents, Atlanta, 11.5 cents, Kansas City, 11 cents and San Francisco, 12.3 cents; Fischer Industries, Cincinnati, 11.75 cents; Unity Sanitary Supply Co., New York, 13 cents; Kamen Soap products Co., New York, fob Barberton, O., 9.4 cents, New York. 9.9 cents, Chicago, 9.9 cents, Atlanta, 10.8 cents, San Francisco, 11.7 cents and Kansas City 10.8 cents.

Sweeping Compound Bids

In a recent opening for miscellaneous supplies by the Bureau of Federal Supply, Treasury Department, Washington, D. C., the following bids were received on 17,000 pounds of sweeping compound: May Hardware Co., Washington, D. C., 170 100-pound drums, $2.99; Michigan Sweeping Compound Co., Detroit, 3 cents packed in 70 or 300 pound metal drums; Allen-Burns Co., Buffalo, N. Y., $2.40 cwt in glassine lined fiber drums; M. E. Mason, Philadelphia, 2.5 cents; Daycon Products Co., Washington, D. C., 2.85 cents in plywood containers; M. J. Gensburg & Son, Washington, D. C., 3.95 cents; Buffalo Sweeping Compound Co., Buffalo, N. Y., $2.30 cwt in paper-fibre containers; Howell Brothers Chemical Laboratories, Philadelphia, 9 cents; Prass Laboratories, St. Louis, Substituting "Clear O Lite" dust control and polish, 71 gallons, $95.85; Mobile Drug Co., Mobile Ala., $4.17 cwt, paper lined jute bags; Paxon Mfg. Co., Philadelphia, 2.8 cents; Goetz Petro Chemical Co., Buffalo, 3.26 cents in glassine lined fibre containers; Worth Spar Co., Middleton, Conn., 3 cents, alternate in 50—pound lined burlap bags; Dixie Janitor Supply Co., Washington, D. C., $2.15 a hundred pounds; Janitor's Supply House, Baltimore, 2.96 cents and John Shea Co., Lawrence, Mass., 2.9 cents in fibre containers.

Toilet Soap Bids

The following bids were received on 20,000 pounds of toilet soap in a recent opening for miscellaneous supplies by the Bureau of Federal Supply, Treasury Department, Washington, D. C.: United States Soap Manufacturers, Philadelphia, 20 cents; Janitor's Supply House, Baltimore, 15.33 cents; Allen-Burns Co., Buffalo, N. Y., 22 cents; Sanitary Soap Co., Paterson, N. J., 35 cents; Stahl Soap Corp., Glendale, N. Y., 22 cents.

P.O. Wax Bids

Included in two recent openings for miscellaneous supplies by the Post Office Department, Washington, D. C., were the following bids on 800 gallons of water emulsion floor wax: International Metal Polish Co., Indianapolis, $1.33 a gallon; Crown Supply Co., Washington, D. C., 69.5 cents; Bri-Test, Inc., New York, 66 cents; Uncle Sam Chemical Co., New York, 80 cents; Davies-Young Soap Co., Dayton, O., $1.26; Windsor Wax Co., Hoboken, N. J., 88 cents; Liquid Veneer Corp., Washington, D. C., $1.10; Marjo Products Co., Chicago, 87 cents; American Products Co., Reidsville, N. C., 55.7 cents; Buckingham Wax Co., L.I. City, N. Y., 59.9 cents; Penetone Co., Tenafly, N. J., 83 cents; R. M. Hollingshead Corp., Camden, N. J., 83 cents; Trio Chemical Works, Brooklyn, 62 cents; Manhattan Kreole Products, Inc. Brooklyn, 95 cents; Wisconsin Chemical Products Co., Milwaukee, $1.02; Twin City Shellac Co., Brooklyn, 75 cents; A. L. Cahn & Sons, New York, 77 cents; Cheswhite Co., Baltimore, 72 cents; Sherwin-Williams Co., Washington, D. C., $1.18, alternate bid of 85 cents; Boyle-Midway Co., New York, $1.30; Oil Specialties & Refining Co., Brooklyn, 77.8 cents; Chemical Manufacturing & Distributing Co., Easton Pa., 88 cents; Wilbert Products Co., Bronx, N. Y., 85 cents; Wyandotte Chemical Corp., Wyandotte, Mich., $2.78;

Bids on an opening for 7,000 gallons of liquid solvent-type wax were received from: Crown Supply Co., Washington, D. C. 69.5 cents a gallon; International Metal Polish Co., Indianapolis, $1.23; Wilbert Products Co., Bronx, N. Y., 68 cents; Oil Specialties & Refining Co., Brooklyn, 78.9 cents; Bri-Test, Inc., New York, 64 cents; Uncle Sam Chemical Co., New York, 70 cents; Davies-Young Soap Co., Dayton, O., $1.10; Windsor Wax Co., Hoboken, 61.4 cents; Liquid Veneer Co., Washington, D. C., $1.10; Marjo Products Co., Chicago, 96 cents; Penetone Co., Tenafly, N. J., 71 cents; Trio Chemical Works, Brooklyn, 56 cents; Ches-White Co., Baltimore, 68 cents; Manhattan-Kreole Products, Inc., Brooklyn, $1.05; Wisconsin Chemical Products Co., Milwaukee, 55cents; Twin City Shellac Co., Brooklyn, 75 cents; Sherwin-Williams Co., Washington, D. C., 78 cents; Buckingham Wax Co., Long Island City, N. Y., 56.9 cents a gallon; Boyle-Midway Co., New York, 81.6 cents; H. Bieler Penn Convey, Philadelphia; $1.47; and R. M. Hollingshead Corp., Camden, N. J., 67 cents.

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NEW TRADE MARKS

THE following trade-marks were published in the July issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of February 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

SPANGLE—This in upper case, bold letters that run up sharply from left to right for glass cleaner and household cleaner. Filed Apr. 15, 1947 by Spangle Solvents Co., West Hartford, Conn. Claims use since Nov. 1, 1946 on glass cleaner and since May 15, 1947 on household cleaner.

A-NU BY JOHN GARTON—This in upper and lower case, bold and medium script, and block letters for shampoo. Filed Feb. 23, 1946 by John Garton, Ltd., Chicago. Claims use since Feb. 18, 1946.

BUZZ STRIP—This in upper case, and upper and lower case, reverse letters on a pennant like background and separating the words is a circle within with is the drawing of a fly for insecticide device comprising a strip of material carrying a coating of poisonous substance for killing flies and other insects. Filed May 3, 1946 by Phillips-Clonick Corp., Rochester, N. Y. Claims use since Mar. 1, 1946.

CHEVRON—This in upper case, extrabold, italic letters, from the "v" of which extend wings for hand sprayers for application of insecticides, etc. Filed July 20, 1946 by Standard Oil Co. of California, Wilmington, Del. Claims use since May 17, 1946.

KOLONES KANES—This in upper case, extra bold letters for bubble bath. Filed June 6, 1946 by Mayo Reese, Inc., Chicago. Claims use since Apr. 23, 1946.

R 3 INSECT REPELLENT—This in upper case letters within a circle for insect repellent. Filed Sept. 19, 1946 by Phillips Petroleum Co., Bartlesville, Okla. Claims use since June, 1946.

GERMASTER—This in upper and lower case, extra bold, script letters for ultra-violet ray lamps for destroying bacteria. Filed Oct. 19, 1946 by O & S Products, Inc., Chicago. Claims use since Oct. 3, 1946.

MIRACLE SUDS—This in upper case, bold letters, one word above the other and the letter "a" in "miracle" extra large for washing and cleaning powder for general household and laundry use. Filed Oct. 28, 1946 by Lenzner Co., Pittsburgh. Claims use since Mar. 12, 1941.

1847 POLISH—This in upper case, bold black numerals and upper and lower case, extra bold, script letters, the word "polish" beneath the date, for polish for silver and other metals. Filed Feb. 11, 1947 by Liquid Glaze, Inc., Lansing Mich. Claims use since Aug. 1, 1946.

Fanciful drawing of a key having arms, legs and face for floor wax. Filed June 28, 1946 by Household Paper Products Co., Detroit. Claims use since Dec. 19, 1945.

FIESTA—This in upper and lower case, bold, script letters for furniture and floor polishes and waxes. Filed Nov. 29, 1946 by Velva-Sheen Co., Denver. Claims use since Oct. 15, 1946.

GOLD CUP—This in upper case, bold letters, words on either side of a loving cup for automobile polish and cleaner. Filed Dec. 3, 1946 by Dunlop Tire and Rubber Corp., Buffalo. Claims use since Oct. 28, 1946.

I-C-D FORMULA—This in upper case, open letters for paint remover compound. Filed Apr. 19, 1947 by Industrial Chemical Development Corp., New York. Claims use since Jan. 1, 1949.

RESTOREX—This in upper case, extra bold letters for chemical paint remover and paint brush cleaner. Filed June 7, 1947 by Penetone Co., Tenafly, N. J. Claims use since July 1, 1941.

PRESTORER—This in upper case, extra bold letters for chemical paint remover and paint brush cleaner. Filed June 7, 1947 by Penetone Co., Tenafly, N. J. Claims use since July 1, 1941.

SLIX—This in upper case, bold reverse letters forming an arc for concentrated base for liquid soapless cleaner used in cleaning several types of floor surfaces and for shampooing rugs and upholstery. Filed May 28, 1945 by F. Gordy Mfg. and Dist. Co., Salt Lake City, U. Claims use since Mar. 9, 1945.

FACID—This in upper case bold letters for chemical compounds used as cleansers and detergents. Filed Feb. 12, 1947 by Falls Chemical Products Co., Oconto Falls, Wis. Claims use since May, 1944.

SKUNKODORA—This in upper case, bold letters for deodorant compositions for deodorizing buildings. Filed Aug. 19, 1946 by Sparhawk Co., Sparkill, N. Y. Claims use since Jan. 1, 1938.

SIGHT SAVERS—This in upper case, bold letters one word above the other for silicone treated polishing tissues for polishing glass and other vitreous surfaces. Filed May 7, 1947 by Dow Corning Corp., Midland, Mich. Claims use since Jan. 22, 1947.

MIL-KILL—This in large and small, upper case, bold letters for chemical preparations for inhibiting the growth of mildew. Filed May 8, 1946 by Fred Alper Industries, Inc., Philadelphia. Claims use since Apr. 1, 1946.

CHESEBROUGH—This in upper case, bold letters across the drawing of a flower for shampoo. Filed Mar. 27, 1947 by Chesebrough Manufacturing Co., Consolidated, New York. Claims use since Mar. 12, 1947.

STIK-GUM—This in upper case, extra bold letters for wetting agent consisting of a non-adhesive, dry, powdered material which may be dissolved in water and used for wetting water-soluble adhesive surfaces. Filed May 9, 1947 by Service Industries, Philadelphia. Claims use since Oct. 1, 1942.

The following trade marks are published in compliance with section 13 (a) of the Trade Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of $25 must accompany each notice of opposition.

TERN—This in upper case, bold, reverse letters on a solid rectangular background for wool washing detergent. Filed Aug. 5, 1947 by Tern, Inc., Wilmington, Del. Claims use since July 21, 1947.

LORRAINE—This in upper case, open and outline letters for bath soap. Filed Sept. 29, 1947 by Industrial Soap Co., St. Louis. Claims use since May 31, 1939.

SHO—This in upper and lower case, oversize, open and shadow letters for wallpaper cleaner. Filed Oct. 29, 1947 by Sho Products Co., Columbus, O. Claims use since Mar. 14, 1945.

EVERITE—This in upper case, extra bold, black letters for acid scale solvent in liquid form. Filed Aug. 2, 1947 by Diversey Corp., Chicago. Claims use since Dec. 24, 1940.

FLOTITE—This in upper case, bold, stencil letters for wetting agent. Filed Sept. 23, 1947 by MacAndrews & Forbers Co., Camden, N. J. Claims use since 1922.

THE QUAKERS OF CONSHOHOCKEN, PA., U.S.A.—This in upper and lower case, medium bold letters for wetting agents. Filed Sept. 26, 1947 by Quaker Chemical Products Corp., Conshohocken, Pa. Claims use since May 1, 1928.

KAL—This in upper case, bold letters on the fanciful drawings of

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three pieces of wash being hung up by a woman for stain remover in washing clothes. Filed Sept. 11, 1947 by Kaleen Chemical Corp., Brooklyn, N. Y. Claims use since July 28, 1947.

INDRALATUM—This in upper case, extra bold letters for petroleum wax. Filed Aug. 26, 1947 by Industrial Raw Materials Corp., New York. Claims use since Dec. 11, 1943.

BLAIR'S—This in large and small, upper case, extra bold letters for polishes and wax for furniture, floors, automobiles, etc. Filed Aug. 19, 1947 by Blair of Virginia, Lynchburg, Va. Claims use since July 1, 1936.

KLEAN SHYNE—This in large and small, open and solid, upper case letters for liquid scrubbing compounds. Filed July 5, 1947 by Adco, Inc., Sedalia, Mo. Claims use since 1923.

SHYNEBRITE—This in upper and lower case, extra bold letters for metal polish. Filed Aug. 16, 1947 by U. S. Sanitary Specialties Corp., Chicago. Claims use since Aug. 4, 1926.

CLOMAK—This in upper case, extra bold letters for detergent compound for washing and cleaning textile fabrics. Filed Sept. 2, 1947 by Wyandotte Chemical Corp., Wyandotte Mich. Claims use since Feb. 20, 1947.

PAWNEE—This in upper case, extra bold, black letters for detergent compound for washing and cleaning textile fabrics. Filed Sept. 2, 1947 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since Aug. 19, 1946.

TRANS—This in large and small, upper case open and shadow letters above the fanciful drawing of a pair of hands from which bubbles emanate for waterless hand cleaner. Filed Sept. 10, 1947 by Raby Brothers, York, Pa. Claims use since July 1, 1947.

400—This in extra large, open numerals for liquid dry cleaning soap for use in cleaning garments in a naphtha bath. Filed Sept. 17, 1947 by Adco, Inc., Sedalia, Mo. Claims use since June 20, 1939.

PERFIDE—This in upper case, extra bold letters for toilet soaps. Filed Nov. 3, 1947 by Les Parfums de Dana, Inc., New York. Claims use since Oct. 24, 1947.

APOLLO—This in upper case, extra bold letters for sudsing cleaner, cleanser and detergent. Filed Dec. 20, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Nov. 26, 1947.

UNCLE DAN'S—This in upper case, bold letters across a pennant like design for soap. Filed Jan. 15, 1948 by Nealon Soap Co., Paris, Tenn. Claims use since Dec. 9, 1947.

PIP—This in upper and lower case, extra bold, black letters for cleansing cream to be applied to the hands for removing ink by subsequent rinsing with water. Filed Jan. 29, 1948 by B and G Chemical Corp., Baltimore. Claims use since Nov. 28, 1947.

COLLARGOL—This in upper case, medium bold letters for antiseptic. Filed Aug. 14, 1947 by Heyden Chemical Corp., New York. Claims use since Nov. 23, 1898.

BIG "G"—This in upper case, bold letters for germicide particularly adapted for sanitizing walls, floors, utensils and other dairy equipment. Filed July 25, 1947 by E. F. Drew & Co., New York. Claims use since Jan. 2, 1947.

GOLDEN 90—This in upper case, extra bold letters for insecticides. Filed Aug. 15, 1947 by Stauffer Chemical Co., San Francisco. Claims use since Apr. 7, 1935.

GOLDEN—This in upper case and lower case, extra bold, script letters for insecticides. Filed Aug. 15, 1947 by Stauffer Chemical Co., San Francisco. Claims use since Aug. 17, 1937.

STAUFFER—This in upper and lower case, bold, outline, old English type letters for insecticides. Filed Aug. 25 1947 by Stauffer Chemical Co., San Francisco. Claims use since Jan. 1, 1895.

CLEAT—This in upper case, extra bold, black letters for chemical soot remover. Filed Sept. 22 1947 by H. Kirk White and Co., Oconomowoc, Wis. Claims use since June 2, 1947.

ALKROM—This in upper case, medium bold letters for insecticides. Filed Oct. 13, 1947 by Eston Chemicals, Inc., Los Angeles. Claims use since Sept. 19, 1947.

CIDAN—This in upper case, bold letters for chemical products used as disinfectant bases and which are not suitable for use as a liquid insecticide, contact spray and fungicide. Filed Sept. 30.1947 by Givaudan-Delawanna, Inc., New York. Claims use since Nov. 2, 1939.

ODRENE—This in upper case, bold letters for odoriferous material for sprays and insecticides. Filed Sept. 30, 1947 by Givaudan-Delawanna, Inc., New York. Claims use since Nov. 4, 1927.

HYDROLAL—This in upper case, bold letters for soap base perfumes. Filed Sept. 30, 1947 by Givaudan-Delawanna, Inc., New York. Claims use since June 22, 1927.

NACENE—This in upper case, bold letters for aromatic materials used as odorant or deodorant in fly sprays and insecticides. Filed Sept. 30, 1947. by Givaudan-Delawanna, Inc., New York. Claims use since Jan. 18, 1935.

SILVER KEY—This in upper and lower case, bold, old English letters for disinfectant. Filed Dec. 31, 1947 by Great American Tea Co., New York. Claims use since Dec. 3, 1932.

ALRYL—This in upper case, light letters for synthetic detergent and wetting agent. Filed Aug. 21, 1947 by Stepan Chemical Co., Chicago. Claims use since Apr. 1, 1947.

SYNTONE—This in upper case, light letters for compounded, synthetic detergent and wetting agent. Filed Aug. 21, 1947 by Stepan Chemical Co., Chicago. Claims use since Apr. 7, 1947.

SLIX—This in upper case, extra bold letters for cleanser in solid or liquid form for general household and industrial uses. Filed July 7, 1947 by Associated Chemical Co. of Canada, Ltd., Toronto. Mark registered in Canada since Feb. 23, 1943.

QUALITY KLEENWELL BRAND—This in upper case, large and small, bold letters, one word above the other within a cross-like box for soap flakes. Filed Aug. 13, 1947 by Kleenwell Products Co., Chicago. Claims use since June 28, 1922.

SOAPTHETIC—This in upper case, stencil letters for soap. Filed Oct. 3 1947 by Essential Chemicals Co., Milwaukee. Claims use since Sept. 12, 1947.

TEXSCOUR—This in upper case, extra bold, black letters for soap. Filed Jan. 31, 1948 by Armour and Co., Chicago. Claims use since Sept. 19, 1945.

PORO—This in upper case, extra bold, black letters for shampoo. Filed July 5, 1947 by Poro College, Chicago. Claims use since Sept. 21, 1906.

MAC'S NO. 13—This in upper case, bold and bold outline letters, one word above the other for preparation for removing radiator rust. Filed July 28, 1947 by Mac's Super Gloss Co., Los Angeles. Claims use since June 1, 1947.

BISCHOFF—This in upper and lower case, bold letters for preparations for the treatment of athlete's foot. Filed Sept. 4, 1947 by Ernst Bischoff Co., Ivoryton, Conn. Claims use since 1924.

DESERT WONDER—This in upper and lower case, bold letters for liquid shampoo. Filed Sept. 15, 1947 by Desert Wonder Products Co., Mentone, Calif. Claims use since Apr. 7, 1936.

GYCOCIDE—This in upper case bold letters for insecticides. Filed Dec. 10, 1947 by Geigy Co., New York. Claims use since Nov. 19, 1947.

FLINT—This in upper case, extra bold, oversize letters for soap. Filed Nov. 4, 1947 by Armour & Co., Chicago. Claims use since Jan. 1, 1908.

DISHTERGENT—This in upper case letters for cleaning preparation for dishes, glassware, pots and pans. Filed Feb. 6, 1948 by West Disinfecting Co., Long Island City, N. Y. Claims use since Jan. 2, 1948.

SERGEANT'S—This in upper and lower case, bold letters for tick killer in powder form Filed Oct. 28, 1947 by Polk Miller Products Corp., Richmond, Va. Claims use since May 23, 1947.

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How do your soaps lather? Sudsing ability is an important consumer requirement. To improve the volume of suds produced by your detergents, let PQ Silicates be your dependable allies. Silicate also car increase the life of a soap bubble more than tenfold.

Even in hard water, PQ Silicate-built soaps are effective suds producers. Although the silicates do not prevent precipitation of hardness in water, the precipitate particles are so small and so well dispersed that they are apparent only as a turbidity and may be easily rinsed away.

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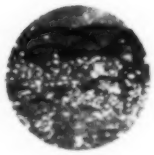

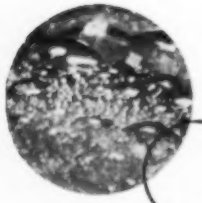

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"GC"—$Na_2O.2SiO_2$. Powdered sodium silicate (disilicate). Hydrated, alkaline, quickly soluble.
Metso Granular—$Na_2SiO_3.5H_2O$. Original sodium metasilicate U. S. Pat. 1898707. White granular product, free flowing.
"N"—Popular alkaline solution, 41° Baumé. Approximate ratio 1:3.22.
"K"—More alkaline, 47° Baumé solution. Approximate ratio 1:2.90.
"C"—Alkaline solution, 59.3° Baumé. Approximate ratio 1:2.00.
PQ

RAW MATERIAL MARKETS

As of July 26, 1948

WHILE the price of tallow has remained unchanged for the past month—16½ cents a pound for the fancy grade—other oils and fats registered rather sharp declines, continuing the pattern of the previous month. Included in the list of oils whose prices declined was another of the soap maker's important raw materials: coconut oil. With the price of copra sagging—down $70 from a month ago—coconut oil reflected the decline and is currently about five and one-quarters cents below the figure of a month ago. With coconut quoted at 19¾ cents, the lowest it has been in some time, the margin between tallow and coconut has been greatly reduced in the past month. The severe drop in prices of edible oils all along the line is of course the natural reaction to failure by Congress to liberalize the tax burden on margarine.

Cottonseed oil is down sharply from last month, but it is now beginning to show some advance. It is currently 26 cents a pound, against 32½ cents a month ago and 24½ cents about a week ago. Soybean is now bringing 22 cents, compared with 26½ cents a month earlier and 19¾ cents about a week ago. Another edible product that has shown a marked decline in a month, peanut oil, now priced at 25½ cents, last month sold for 33 cents. It went as low as 25 cents a week ago.

With the decline in vegetable oil prices, both major producers of shortening, Lever Brothers Co., Cambridge, Mass., and Procter & Gamble Co., Cincinnati, announced they had reduced the price of their shortenings two cents a pound during mid-July. Prices of 88 percent tallow chip soap have remained unchanged in the 20-22 cent a pound range for better than two months now.

Exports of copra from the Philippines during June were about nine thousand long tons under the May figure. Exports of copra from P.I. were 38,411 long tons in June, compared with 47,326 tons in May and 32,149 in June, 1947. Coconut oil shipments from the Islands totaled 2,508 tons during the month, and were all sent to the U. S.

A decline in imports of fats and oils into the United States and an increase in exports of fats and oils by the U. S. in the first five months of 1948, as compared with the first five months of 1947, was reported recently by the Office of Foreign Agricultural

EXQUISITE FLORALS FOR SOAPS

Apple Blossom	Honeysuckle	Rose
Carnation	Hyacinth	Sweet Pea
Clover	Jasmin	Syringa
Fougere	Lavender	Verbena
Gardenia	Lilac	Violet
Geranium	Lily of the Valley	Wisteria

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STYRAX PURIFIED

This competitively priced, superior grade product is made from the crude resin by a special method of purification. A clear, amber liquid of uniform viscosity, STYRAX PURIFIED by FRITZSCHE is widely employed in soap manufacture for its fine fixation and very agreeable odor.

RESINOID STYRAX

is recommended as a modifier and fixative for the scenting of better grade soaps, toilet waters, colognes, perfumes, dusting or body powders, etc., especially in lilac compositions and oriental blends.

STYRAX EXTRA

This interesting oil blends with such compositions as lilac, wistaria, hyacinth, lily, jonquille, jasmine, tuberose and fancy bouquets. It is used in extract perfumes for its very pleasant and distinctive odor. F.B. OIL STYRAX EXTRA is an outstanding product, well worthy of examination.

THESE three Styrax specialties are produced in our own plant under rigid supervision by the most modern and efficient methods known. Our unique position in this field enables us to offer you these materials freely and at moderate cost. May we send you samples?

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BRANCH OFFICES *and* *STOCKS: *Atlanta, Georgia,* **Boston, Massachusetts,* **Chicago, Illinois, Cincinnati, Ohio, Cleveland, Ohio, Dallas, Texas, Detroit, Michigan,* **Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, California,* **St. Louis, Missouri,* **Toronto, Canada and* **Mexico, D. F.* FACTORY: *Clifton, N. J.*

Economics. Imports during the period January to May, 1948, amounted to 529,200,000 pounds of oils and oilseeds in terms of oil.

Reductions in both imports and exports of fats and oils under tentative allocation schedules for the United States were approved recently by the U. S. Department of Agriculture for the calendar year of 1948. The downward revisions of tentative schedules announced last February and made on the basis of recommendations of the International Emergency Food Committee are still preliminary. Under the Feb. 2 schedule, the U. S. was to import 928,000,000 pounds of fats and oils during 1948, while during the same period its exports were to be about 670,000,000 pounds. The newly revised schedule calls for U. S. imports of 732,000,000 pounds and exports of 625,000,000 pounds. Imports under the newly announced and tentative allocation plan call for the U. S. to receive 4,400,000 pounds of rapeseed oil from Canada and a similar amount from China; 200,000 pounds of liquid edible oils from Portugese areas; 28,700,000 pounds of babassu oil from Brazil; 513,100,000 pounds of copra from the Philippines, 22,000,000 pounds from Pacific Islands under U. S. control and 6,600,000 pounds from the Netherlands East Indies; 55,100,000 pounds of palm oil from the Belgian Congo, 22,000,000 pounds from the Netherlands East Indies and 2,200,000 pounds from Portugese areas; 4,400,000 pounds of marine oils from Newfoundland; 13,200,000 pounds of linseed oil from Canada and 4,400,000 pounds from Mexico; 50,700,000 pounds of olive oil from all sources.

The U. S. revised tentative export allocation includes: 257,900,000 pounds of liquid edible oils; 223,800,000 pounds of lard; 7,300,000 pounds of copra or coconut oil; 82,700,000 pounds of hard and semi-hard fats and oils; 900,000 pounds of marine oils; 38,600,000 pounds of linseed and 14,600,000 pounds of soap.

Summarizing the fats and oils outlook the Department of Commerce Industry Report on Fats and Oils points out that "production of fats and oils from domestic materials has continued favorable and output in the 1947-48 season is expected to reach over 9.7 billion pounds." That amount, if realized, is the third largest in history. Soap fats, the report states, are balanced by the relatively large holdings of inedible tallow and grease and the reduced amount of coconut oil available.

Pending clarification of a report that Brazil had established floor prices on all grades of carnauba wax, the market has been inactive, with both buyers and sellers awaiting word of action on the Brazilian move to set up minimum prices.

Rotenone prices are reported to have dropped from 38 to 33 cents a pound, with one supplier reported selling 5 percent cube powder for 31 cents.

With dealers' stocks reported growing larger than consumer demand, the list of essential oils and aromatic chemicals on which prices have been lowered is growing longer. No price increases have been reported lately.

CRESYLIC ACIDS

Barrett* Cresylic Acids are especially valuable in textile scouring compounds for removing natural greases and paint from raw wool. These standardized mixtures of tar acids, including cresols, blended to meet particular commercial requirements, are also widely used in the production of commercial disinfectants and metal-cleaning compounds.

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FOR SOAP AND SANITARY CHEMICALS

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PRODUCTION SECTION

Petroleum Detergents

SYNTHETIC detergent production is now one of the major industries in this country from the point of view of tonnage. It is estimated that production will reach 700-800 million pounds per year by the end of 1948. Of this, about 60-70 per cent will be for the manufacture of detergents derived principally from petroleum products. These include alkyl phenol sulfonates, alkyl sulfonates, and alkyl aryl sulfonates.

Of these the alkyl aryl sulfonates, or alkyl benzene sulfonates in particular, are the most important. The alkyl group is a saturated hydrocarbon chain containing nine-18 carbon atoms. The detergent characteristics vary both with the number of carbon atoms in the alkyl chain and with the arrangement of the atoms in the chain. As the length of the straight chain increases, detergent properties increase to a maximum at 12-15 carbon atoms, and then decrease.

Most of the commercial aykyl aryl detergents being sold today contain about 35-40 per cent of active material, the rest being inorganic salts such as sodium sulfate, phosphates, silicates, etc. . Many detergent compounders are purchasing products containing 60 per cent of active ingredient and blending this with other surface-active agents or with inorganic salts, in order to prepare products with special foaming, wetting, or detergent properties.

Method of Manufacture

In manufacture, (1) an alkyl group is combined with an aromatic hydrocarbon, (2) the resulting alkyl aryl hydrocarbon is sulfonated, and (3) the sulfonic acid formed is neutralized. The alkyl portion is derived from a kerosene distillate fraction obtained from the refining of parffinic crudes, with a boiling range between 185° and 290°C. and having 10-16 carbon atoms in the chain.

In the first step kerosene is pumped into a lead-lined, agitated reactor. A catalyst, usually iodine, is dissolved in the kerosene. Chlorine gas is then passed through the liquid at such a rate as to maintain the reaction temperature of 60-70°C. The process is continued until it is calculated that the kerosene has been monochlorinated. The chlorinated kerosene is reacted with an excess of benzene in the presence of catalytic quantities of anhydrous aluminum chloride in a glass-lined, agitated reactor. The approximate molar ratios of chlorinated kerosene to benzene to anhydrous aluminum chloride used are 1:6:0.1. The usual techniques of a Friedel-Crafts reaction are followed. After all of the chlorinated kerosene has been added to the benzene, the reaction mixture is agitated for another hour or so to allow the reaction to be completed. It is then allowed to settle and the aluminum chloride sludge is drawn off.

In both chlorination and alkylation steps, hydrochloric acid is a by-product. The acid vent gases are scrubbed in a stoneware tower with water. The resulting acid solution may then be purified. After the aluminum chloride sludge has been drawn off, the crude product is distilled. First, the unreacted benzene is removed and recovered, then unreacted chlorinated kerosene and other light boiling constituents are removed for recycling. Finally the alkyl benzene is distilled off under vacum and sent to the sulfonation, neutralization, and drying steps.

While sulfonation is simple, at the same time it is the most critical step. If the sulfonation is not complete, if the unsulfonated material is not adequately separated from the sulfonate, if the product becomes contaminated with iron, or if excessive polysulfonation occurs, the resulting detergent will be inferior. Temperature, concentration of acid, and time of raction are all variables. With 20 per cent fuming sulfuric acid, temperatures of 35-45°C. for two hours, have been used. With 100 per cent sulfuric acid, a temperature between 65 and 80°C. is used for one hour. The alkyl benzene hydrocarbon is mixed with about 1.25 times its weight of acid.

When sulfonation is finished, the mass is allowed to settle, and spent sulfuric acid and unreacted hydrocarbon layers are separated. The sulfonated material is then drowned in ice water and neutralized with caustic soda. Neutralization is accomplished in a stainless steel, agitated tank provided with cooling coils.

Special Distillate Fractions

In order to obtain a distillate fraction with a closer boiling range than that of the kerosene ordinarily used, a redistillation would be required to produce a material with fewer variations in chain length. The distillate fractions of close-boiling range are naturally much more expensive than those of broad-boiling range. Considerable experimentation has been done on this. In one process, the lower gaseous olefins, propylene and butylene—are polymerized to form octene, nonene, dodecene, pentadecene, and hexadecene. The reaction products are continuously removed and are separated into individual components by distillation.

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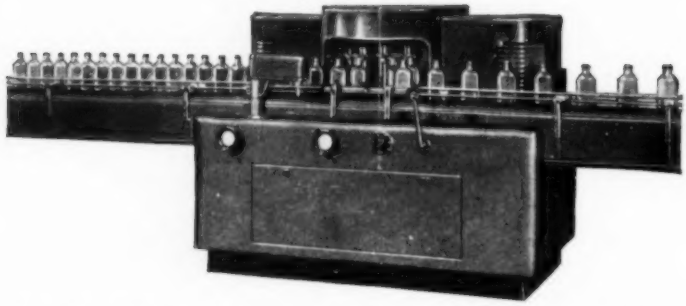

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Actual preparation of the active compound from the basic alkyl aryl hydrocarbon by sulfonation and neutralization, is quite suited to the small soap processor. A plant to process about 30,000 pounds per 24-hour day of 60 per cent active detergent can be installed at a cost of about $75,000-$85,000. A major part of this is for the drying equipment. Costs for the manufacture of a 60 per cent active detergent in a plant of this size have been calculated to be about 14 cents a pound, including costs of chemicals, utilities, labor, packaging, and fixed charges. These figures will of course vary, depending on conditions. M. Sittenfield, *Chemical Engineering* 55 No. 6, 120-2 (1948).

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Measuring Foaming Power

A simple apparatus was developed for measurement of foaming power. It consisted of a 25-cc. graduated cylinder provided with a cover through which passes a rod, to the bottom of which is fixed a perforated disc nearly as large in diameter as the cylinder. Fifty cc. of soap solution are put in the cylinder, the level of the liquid is read, and the perforated plate is raised and lowered until the volume of foam remains constant. Increase in volume gives a measure of foaming power. Results are reproducible and give wide variations for different products in five per cent solution. For example, a washing powder gave 77 per cent, a powdered soap 175, and a sulfated fatty alcohol 360 per cent. A Noll. *Seifensieder-Ztg.* 73, 41-2.

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Fat from Tall Oil

The separation of neutral fat from tall oil is effected by dissolving the tall oil in an alcohol, neutralizing with caustic soda, heating to dehydrate the solution, cooling slowly, and filtering out the precipitated soaps. The filtrate is acidified and heated to esterify the residual fatty acids and to isomerize the resin acids to abietic acid. The components are then separated by distillation and extraction. A. G. Houpt, to Am. Cyanamid Co. U.S. Patent No. 2, 437,643.

Synthetic Detergents Seen Better for Fine Wash

IN official reports from Germany, the general opinion is expressed that for fine wash where soil is light, synthetic detergents perform better than soap. They have competed successfully with soap and should continue to do so, both in the laundry and in the household. For the family cotton wash (white wash) the opinion seems to be that soap with soda ash will give better all-round performance.

In German laundries having softened water, the synthetics with soda ash plus "Tylose HB" may compete more successfully with soap than where water of varying degrees of hardness is in use. The reason for this is that the synthetics are said to deposit calcium carbonate in fabrics washed in hard water in the presence of sodium carbonate. This makes the fabric stiff and gives it a harsh feel. Since German chemists seem to think that cotton must be washed in the presence of soda ash, this deposition of calcium carbonate by synthetic detergents in hard water is looked on as a serious handicap to their popularity as detergents for household family wash. "Tylose" (carboxy methyl cellulose) addition does not prevent this.

It is felt that the precipitation of lime soaps occurring from soap in hard water, presents a less serious problem to the housewife than the calcium carbon deposition from synthetic detergents. This calcium carbonate deposition was also given as one of the main reasons that soap containing some synthetic detergent would not be a good product for cotton washing in hard water. Theoretically the presence of the synthetic detergent should give good dispersion of the lime soaps, but the calcium carbonate deposition is an argument against such combinations.

It is interesting that none of the German chemists interviewed was of the opinion that advantages could be gained by adding synthetic detergents to soap. It was said by all who had studied the problem that such combinations do not foam or wash as well as the soap alone. It was suggested that addition of the synthetic affects the colloidal structure of the soap adversely, and this effect is responsible for poorer foaming and washing. With reference to the possibility of lime soap dispersion by incorporation of a synthetic in a soap product, it was stated that this would not be the effect in the rinse solution, for the dispersion depends on the concentration of the synthetic, and not on its ratio to the soap.

Methods in use for manufacture of the following are outlined: "Gardinol WA," "Gardinol CA," "Avirol KM," "AH Extra," "Modinal," sulfonated sperm oil, sulfonated fish oil. Continuous sulfation of fatty alcohols is in the pilot-stage. *Soap, Perfumery & Cosmetics* 21, 467-8 (1948).

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Silica in Soap

The gravimetric method for the determination of silica in soaps involves time-consuming evaporation and dehydration with concentrated sulfuric acid. In addition, there is a large chance for error due to spattering and insufficient dehydration. A volumetric method is described which eliminates these disadvantages, and is both rapid and accurate. Presence of carbonates and phosphates requires adjustment to neutrality followed by back titration, with subsequent titrations in the presence of the required amount of sodium fluoride. R. M. Kelley and E. W. Blank, *J. Am. Oil Chemists, Soc*, 25 225-6 (1948).

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Rice Bran Oil Composition

The glyceride composition of two crude samples and one refined sample of rice bran oil was as follows: 0.8, 1.06, and 0.84 per cent of linolenic acid; 33.2, 30.6, and 33.1 of linoleic acid; 45.0 46.0, and 46.3 or oleic acid; 17.1, 17.3, and 17.1 of saturated acids; and 3.9, 5.0, and 2.7 per cent of unsaponifiable matter, respectively. K. S. Murti, and F. G. Dollear, *J. Am. Oil Chemists' Soc.* 25, 211-13 (1948).

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Evaluation of Emulsifiers

FOR the evaluation of emulsifiers, a group of materials is selected representative of those most commonly required to be emulsified, such as the following: Mineral oil, petrolatum, paraffin, vegetable oils of the drying and nondrying types, carnauba wax, beeswax, kerosene, xylol, and dibutyl phthalate. Emulsions are prepared with these materials, using a standard procedure. The only variant is the emulsifier employed. The behavior of each product is noted as the emulsion is prepared.

The emulsion is placed on a shelf and a record of its stability and other characteristics is kept. From these data the performance is noted so that the emulsifying properties become established in a general way. The method is a help as a screening process. For example, a given emulsifier that will or will not work with one type of vegetable oil will probably behave the same way with another vegetable oil of similar nature. An emulsifier that does not emulsify xylol will probably not work with benzol or toluol. Performance data developed in this manner are filed and used when an emulsifier is being sought for a particular application. This is of course just a preliminary test. The final test is to select a number of emulsifiers by this method and then to test them with the materials to be used in a specific instance in the proportions and under the conditions of actual use—this being the only final and reliable method.

After emulsifiers have been selected by the screening method, they are considered from the point of view of toxicity, stability, and compatibility. These standards depend on the requirements for the finished product. When the centifugal method for testing stability was compared with shelf testing, poor agreement between the two was found.

A rapid and reliable method for determining stability is by microscopic examination. When the emulsion is placed on the shelf, a droplet from the same sample is examined under the microscope and the average particle size is determined by the use of a stage micrometer. Observations are made periodically, and any significant increase in particle size has invariably been found to be an advance indication that the emulsifier is going to separate. By this method the breaking point visible to the unaided eye can sometimes be anticipated by one to two months. In all cases, indicated instability predicted by increase in particle size, has been borne out by subsequent shelf testing. I. R. Hollenberg, *Soap, Perfumery & Cosmetics* 21, 474-6 (1948).

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Solubility of Soaps

Solubility data of sodium and potassium soaps have been collected. Detailed phase diagrams are presented for aqueous systems of potassium laurate, myristate, oleate, palmitate, and stearate.

In the solubility studies it was found that hydrolysis obscured the temperatures of solution but was obviated by the presence of a small excess of alkali. Each sodium soap has a large range of temperature between fair and high solubility, whereas potassium soaps go abruptly into solution, at almost the same temperature and concentration of each soap. J. W. McBain and S. C. Sierichs, *J. Am. Oil Chemists' Soc.* 25, 221-5 (1948).

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Analysis of Detergents

The quantitative analysis developed for "Igepon T" has been extended to cover other synthetic detergents which contain the sulfonic acid group. In order to be applicable, not only must the product be a sulfonate, but it must form a water-insoluble with a weak organic amine such as benzidine. The amine used should not be so strongly basic as to turn phenolphthalein red. The method depends on precipitation of the detergent compound in the form of a benzidine or similar salt. This salt is filtered off, washed, dried, freed of soap with petrolic ether, and dissolved in alcohol to separate it from inorganic sulfates. An aliquot of the solution is titrated with sodium hydroxide, and another aliquot is evaporated to dryness and weighed.

The method can be used for routine analysis of the strength of a number of commercial detergents which are purchased at present more or less on faith. It can be used for assaying mixtures of these detergents with soap. The method yields data from which the approximate average molecular weight of a detergent compound can be calculated. For example, a commercial sample of the alkyl aryl sulfonate type, when analyzed by this method, was found to have an average molecular weight of 359.3. D. A. Shireaff, *Am. Dyestuff Reporter* 37, 411-16 (1948).

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Oxidation Products

The action of air on an aqueous solution of potassium palmitate at 100°C. for 76 hours yielded 0.79 mol per cent of carbon dioxide, 0.85 per cent of oxalic acid, 0.32 per cent of unsaponified matter, and 0.19 per cent of mixed lactones having a saponification number of 413. It was concluded that beta-oxidation occurred to give oxalic acid and lower fatty acids as scission products, and in the presence of alkali, a ketone scission. C. Paquot and F. de Goursac, *Compt. rend.* 226, 258-60 (1948). through *Chem. Abs.*

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Extracted Rice Bran Oil

When freshly milled rice bran of good quality is extracted with commercial hexane, an oil of relatively low free fatty acid content is obtained. This oil possessess good color and is as stable as other similar types of crude oils. When subjected to ordinary caustic-soda refining, good rice bran oils behave much like cottonseed oils of comparable free fatty acid content. Refined rice bran oil has a definitely greenish cast resulting from the presence of chlorophyll, but this color can be removed by bleaching with a small amount of activated acidic clay. P.B.V. Redde, K. S. Murti, and R. O. Feuge, *J. Am. Oil Chemists' Soc.* 25 206-11 (1948).

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PRODUCTION *Clinic*

By E. G. THOMSSEN, Ph.D.

LAST month we considered the use of pebble mills, chaser mills and attrition mills in the production of finely ground, pure soap powder. Our current discussion covers the use of more modern pulverizers and micronizers for the reduction of dried soap chips to fine particle sizes. While not much soap is ground to micron sizes, the newest units accomplish the disintegration of soap to extremely fine particles. As the latest grinding equipment is rather costly, only such plants as have enough volume warrant such installations.

Standard testing sieves are generally used to determine the fineness or mesh of a product. As it has become possible to grind soap and other materials down to micron sizes, new methods of measurement are necessary. Since a 325 mesh standard sieve is about 44 microns in size and there are about 44,500 microns to the inch, U.S. Standard sieves are no longer suitable in the very fine range of particle sizes. These sizes may now be determined microscopically by observation through an eyepiece containing a calibrated length scale. An air permeability method is also being used satisfactorily according to Blaine in A.S.T.M. Bulletin 108 (1941). By these methods, particles down to 50 microns may be determined satisfactorily.

To rapidly grind soap down to sizes of 200-mesh or less, mills made by the Raymond Pulverizer Division of Combustion Engineering Co., Pulverizing Equipment Co., and W. J. Fitzpatrick Co. are used quite frequently. The first two companies also make pulverizers that disintegrate to micron sizes. In addition, International Pulverizing Co. and Eagle Pencil Co. offer mills for grinding to micron range particle sizes.

We will first consider briefly the mills that grind soap down to 200 mesh or better.

Raymond makes two mills for this purpose. The one we have found to be the most economical is the "Imp Mill" used with air separation. This mill rapidly grinds and classifies the soap powder to uniform fineness. The use of a closed circuit, whereby the oversized particles are continuously returned for regrinding, is advisable. As considerable air and dust must be handled with this mill, an efficient dust collector is a necessary accessory. Two floors should be used for the installation as the separator is best located at 10 to 12 feet above the mill. The ground material may be safely packaged directly from a closed storage bin to which the ground powder is blown. If finer powder is desired, the Raymond roller mill will produce a powder up to as high as 325 mesh.

The "Mikro Pulverizer," made by Pulverizing Machinery Co., is well adapted to grind soap up to 200 mesh or finer. The new "Mikro Dust Collector," used in conjunction with the pulverizer, permits an installation that is practically dust free. The pulverizer operates at low cost, requires little floor space, produces a uniform particle size, does not require a skilled operator and is easily cleaned for grinding other materials. When a closed system is used, materials may be readily bagged with a minimum of soap dust, which is quite irritating to workmen who are subjected to it for even short periods. A range of six mill sizes is available.

The "Comminuter," made by W. J. Fitzpatrick, can be used for many purposes including the grinding of soap. It will grind soap to a fineness of 200 mesh without raising dust, and thus requires no dust collector. The end product is uniform. The machine itself is flexible and mobile. Flexibility is obtained by two or more operating speeds. Rubber tire casters with a locking device permit its movement to various locations in a plant.

The production of powders of near micron sizes and below it possible through the use of several mills.

The "Mikro Atomizer," made by Pulverizing Machinery Co., is designed to reduce material to particle sizes of one to two microns. Its method of operation is simple. The pulverized material is atomized by an air stream that carries it into a separator wheel which whirls it about at high speed. A suction fan is so regulated as to draw out only the finest particles and discharge them. The centrifugal force of the wheel, however, increase the gravitational weight of the coarser particles so that they fall back into the path of the grinding hammers which beat them until they are fine enough to be drawn off.

The Raymond "Vertical Mill" produces materials which range in size from U.S. Standard Sieve of 325 mesh down to 5 or 10 microns depending upon feeding and other conditions. A detailed description of this mill would be too lengthy to take up here.

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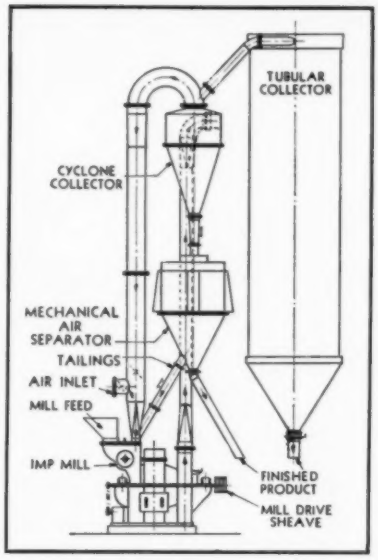
Briefly, the coarse material falls on a high speed rotating reduction element. The disintegrated material rises in a spiral path into a whizzer classifier where its rotating velocity increases. The coarse particles collect on the wall of the chamber and are returned to the size reducing element. The fine particles pass on through the classifier and are sucked out by a fan to a cyclone which separates them from the air stream. The air rate and temperature of this mill may be controlled and it works best on materials with a hardness index below four.

The "Micronizer," the "Reductionizer" and the Eagle mill are all driven by fluid energy. They utilize compressed air or high pressure steam to drive them. The "Micronizer" reduces various materials to an average size of from two to six microns, depending upon the character of the material and the mesh size at which the material is fed. The "Reductionizer" grinds from 35 to 4600 lbs. per hour to a fineness from five to 30 microns with no material left on a 325 mesh sieve. The Eagle mill has been successfully used for such materials as talc, pigments, clays and insecticides. At an air consumption of 200 cubic feet per minute, and a pressure of 90 lbs. psi, this mill produces per hour from 25 to 50 pounds of ground material having a particle size of from four to 31 microns.

Those who are interested in grinding equipment that reduces to micron sizes will find it profitable to read a paper by C. E. Berry on this subject in *Industrial and Engineering Chemistry* 38, No. 7, P. 672 dealing with modern pulverizers.

Irone Studies

Givaudan-Delawanna has sent us a pamphlet published by Helvetica Chimica Acta, Volume XXX (1947) Nos. 276, 277, 278, 279. This contains a series of articles on the studies of the volatile vegetable substances, their consititution and the synthesis of Irone. The research work was carried out by Y. R. Naves and P. Bachmann at Givaudan's Geneva laboratories. The investigators first isolated a product from irone that has the definite chemical constitution



Above: Diagrammatic representation of the Raymond Imp mill with mechanical air separator. Reason for locating separator on second floor is gravity flowback of "tailings" or rejects for further grinding.

$C_{14}H_{22}O$. Further investigation indicates quite conclusively that the irone studied was methyl 6 alpha ionone.

Cheaper Mineral Free Water

American Cyanamid Co. recently found that through the installation of their "Filt-R-Stil" the cost of producing mineral free water was reduced from $5.00 per thousand gallons to 26 ½c. per thousand gallons. The water, used by the J. T. Baker Chemical Co., Phillipsburgh, Pa., for their reagent chemicals, is considered equal to or better than triple distilled water. The apparatus employs the ion exchange principle using a multibed system. The raw water contains 151 ppm of ionized solids, 17 of which are silica. These are brought down to not more than four parts per million. If the water goes above this figure a sound alarm is activated. A total of 6700 gallons of water per hour are treated. When the treated water storage tanks fill up, the entire system is automatically shut down. When operation is resumed, small quantities of undesirable water are automatically discarded. The low operating costs of producing demineralized as against distilled water recommend installations of this kind in many directions. American Cyanamid Co., Ion Exchange Department, New York, will give further details regarding their product upon request. There are also several other companies who offer such apparatus.

Hydrogenator

Bamag, Ltd. of London, Eng., exhibited at the British Industries Fair, for the first time, a new hydrogenator intended mainly for the smaller users of fats and oils. The equipment comes in four sizes, upward from a batch capacity of 30-35 lbs. to 550 lbs. Electrolysers with capacities of five cubic feet of hydrogen upward in 29 sizes to 35,000 cubic feet per hour are also available. Bamag claims their equipment has certain advantages especially for smaller plants. Among these are rapid hydrogenation to any melting point, low temperature hydrogenation, little development of acidity, saturation hydrogenation in an hour, use of any catalyst, availability of special catalysts for high acid oils and fatty acids and compactness.

Vibration Control

The troublesome vibration of many pieces of equipment, such as pumps, air compressors, blowers sifters etc. is easily eliminated by "Chan-L-Mounts" made by Lord Manufacturing Co., Erie, Pa. These are adaptable to a wide range of light and medium weight machines. It is not necessary to use special fixtures nor to drill holes to install them. The company's Bulletin #300 describes these mounts fully.

Capper Beauty Survey

The "1947 Beauty Survey" conducted by Capper Publications, Topeka, Kans., on behalf of its publication *Household* was issued last month. Figures on bath, face and hand soaps; shampoos in cream, powder, liquid, cake and package soap forms; tooth paste; tooth powder are included. A feature of this year's survey is that is gives figures on total number of consumers in homes reached by the magazine, *Household*. Usually, the figures are based on what the subscribers themselves buy. The

O./B.T.48

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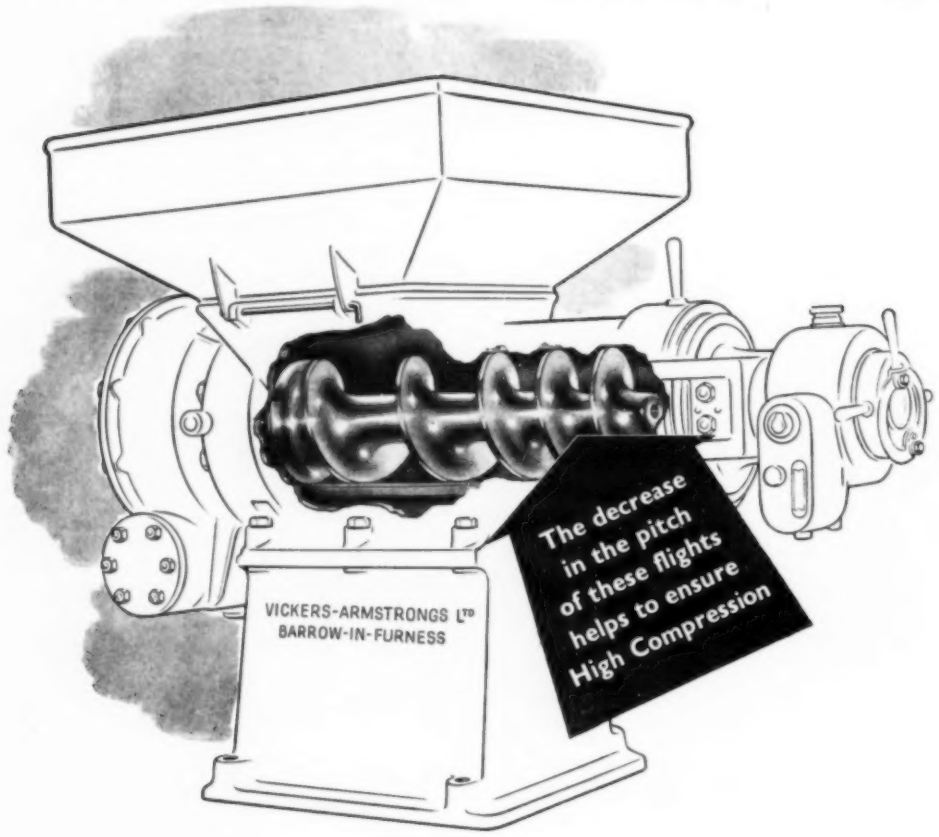

TO achieve the smooth compact texture which is the hallmark of every good toilet soap, high compression of the milled ribbons is essential in the plodder stage. This is secured in the Vickers-Armstrongs' Plodder by various features in the design. Examine the worm and you will find a progressive decrease in the pitch of the flights towards the pressure plate end. This acts in two ways. It ensures an ample supply of soap mass being pushed forward into the cylinder and it subjects this mass to an increasing compression as it approaches the pressure plate. All air is thus expelled.

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survey measures the total use of cosmetic and toiletry products (including soaps) and determines brand preferences of products personally used by subscribers.

Folder Lists Formulas

A folder dealing with cosmetic formulations using "Polawax," a *self-emulsifying stearly alcohol* made by Croda, Ltd., Snaith Goole, Yorks, England, was issued by the firm recently. Formulas for 32 products are listed. The fourth and final page of the folder contains a list of products supplied by the company to the pharmaceutical and cosmetic industries.

Seydel Benzoates Booklet

Seydel Chemical Co., Jersey City, N. J., last month issued a 24-page booklet bearing the title, "A Treatise on Benzoates," which in addition to considerable data on the preservative properties of the product, contains information pertaining to the use of sodium benzoate. A resume of Federal and State laws governing the use of benzoate of soda is also included, as is a partial list of chemicals made by Seydel.

Bulletin on Tall Oil

"Tall Oil and Its Uses" is discussed in "Tall Oil in Industry" bulletin of the Tall Oil Association, New York. After listing the advantages of tall oil from the standpoint of price and dependable source of supply, the folder carries a chart showing the various products in which tall oil can be used. Consumption of tall oil by industries is also shown, as are members of the Tall Oil Association.

Briefs Discusses Shampoos

"Semi-solid Shampoos" of the creme, soft paste and stiff gel classes are discussed in the July number of Schimmel *Briefs*, external house organ of Schimmel & Co., New York. The current number deals with the formulation of various semi-solid shampoos and discusses the role of perfuming materials in these products.

Book on Cottonseed

"Cottonseed and Cottonseed Products," edited by A. E. Bailey, and recently published by Interscience Publishers, Inc., New York, while in the main devoted to the edible aspects of the subject does have one chapter dealing with inedible products using cottonseed. Since only about one and one-half percent of all cottonseed produced goes into inedible products the proportion of space devoted to this use is about right. The chapter "Nonedible Cottonseed Oil Products" was written by the late O. H. Wurster, W. J. Govan and G. J. Stockmann of Wurster & Sanger, Inc., Chicago. Other contributors to this 936 XXIII page work include O. H. Alderks of the chemical division of Procter & Gamble Co., Ivorydale, O.; Edward M. James, Lever Brothers Co., Cambridge, Mass., and Charles E. Lund of the Fats and Oils Division, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C.

The book is broken down into five main sections: "History and Present State of the Cottonseed Industry;" "Composition and Characteristics;" "Grading and Evaluation of Cottonseed and its Primary Products;" "Cottonseed Processing;" and "Utilization of Cottonseed products."

Price of the book is $17.50.

Hercules Product Folder

A brief description of its products for manufacturers of insecticides and disinfectants is contained in a recently issued, four-page multi color folder of Hercules Powder Co., Wilmington, Del. The folder, which was mailed to the company's stockholders, discusses the research development and manufacturing work of the company in producing a wide range of synthetics from naval stores materials. A list of sales offices and foreign subsidiaries is contained on the final page of the folder.

New Detergent Dispenser

A new detergent dispenser for use on dishwashing machines was developed recently by Independent Specialties, Chicago. The new device, which dispenses detergents to the wash tanks of dishwashing machines is known as the "Automatic Solutionizer." It is available in three sizes: three, four and five quarts. The supply tanks of present models are made of stainless steel. Since the supply tanks are mounted about $\frac{3}{8}$" above the cabinet of the dishwasher, the cabinet can be easily cleaned.

New Shut-Off Valve

A new valve designed to shut-off tight despite corrosive action or deposits on the valve parts in handling hot acids, strong or highly corrosive solutions, hydrocarbons and other penetrative fluids was announced recently by Sellers Injector Corp., Philadelphia. The valve features self-cleaning action, multiple-seat design, and injection sealing for emergency conditions. It is available in $\frac{1}{2}$ to 10 inch sizes, with choice of standard flange connections.

New "Microvac Pump

F. J. Stokes Machine Co., Philadelphia, recently brought out a new line of high-vacuum pumping equipment under the name, "Series 'F' Microvac" pump. The new line is said to maintain pressures down to five microns, with a minimum of moving parts and automatic operation. The "Series 'F' Microvac" has a new exhaust valve assembly engineered for better blank-off pressures and quieter operation. Featured in it are a special, more rigid wearing plate, beryllium copper springs, hardened steel studs, and a feather valve of a tough, recently developed synthetic material. The entire pump is automatically lubricated, doing away with the need for greasing. The new series is produced in six different sizes. Available with each model is a unique centrifugal oil purification unit which assures a continuous supply of clean oil. Construction is designed to prevent harmful dirt and scale collection where it might cause excessive wear, and to allow for easy access to valve assembly and other parts that need periodic inspection.

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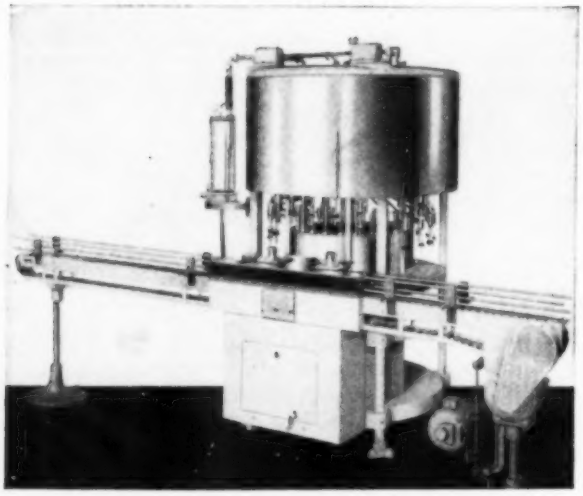

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PRODUCTS AND PROCESSES

Shoe Whiting

A cleaning and covering agent for white linen shoes is made from "Tylose" (carboxy methyl cellulose) or other colloidal agent such as pectin or dextrin, to give a viscous solution, this is mixed with glycerine or glycol and a white pigment such as chalk, talcum, zinc white, titanium dioxide, etc. and worked in. For rapid wetting, a percentage of denatured alcohol or acetone is added. The suspension, if it contains a cellulosic compound, should be preserved with an agent such as 0.1-0.2 per cent of "Nipagin." A somewhat similar product can be prepared in powdered form from the following: 10 parts of dextrin or casein, 70 chalk, 10 talcum, nine titanium white, and one quart of preservative. *Seifen-Ole-Fette-Wachse* 74, 105 (1948).

Polyphosphates

Polyphosphate compositions are obtained by fusing an alkali metal phosphate with P_2O_5 at a temperature of approximately 1900°F. The composition corresponds to the formula $Me_9P_7O_{22}$. C. F. Bonnet and R. B. Booth, to Am. Cyanamid Co., Canadian Patent No. 448,973.

Antifogging Agent

A solution used to impregnate cloths for use in wiping goggles, windows and similar surfaces, to prevent fogging, contains the following:

Fatty alcohol sulfate	700	grams
Tannic acid	90	"
Glycerine	160	"
Blue dye, Pontamine Sky Blue 6BX	9	"
Water, to make	8	liters

Dissolve the dye in 500 ml. of hot water. Dissolve the tannic acid to which 10 ml. of denatured alcohol have been added, in 500 ml. of water. Also dissolve separately the fatty alcohol sulfate in several liters of water and add the glycerine to this, followed by the solution of tannic acid and that of the dye. Dilute to eight liters. Suitable soft cloth is impregnated with the solution at room temperature. The cloth is then dried, after which it is ready for use.

The antifogging effect is obtained by merely wiping the glass with the impregnated cloth. The efficacy of the product has been demonstrated by months of testing on goggles worn in factory steam rooms, and by application to car windows. The blue dye is included in the formula to provide a distinctive color for indentification and to prevent misuse. Other colors may be used if desired, and other suitable surface-active agents may be substituted for fatty alcohol sulfate, adjustment in proportions being made as needed. *Glycerine Facts;* June 1948.

Cation-active Compound

A higher fatty-acid ester of ethylene chlorohydrin is heated with a mixture of diethylene triamine, triethylene tetramine, and tetraethylene pentamine to give a cation-active compound. D. W. Jayne and H. M. Day, to Am. Cyanamid Co. Canadian Patent No. 448,976.

Sodium Tripolyphosphate

A solution in water is made to contain at least five moles and less than six moles of Na_2O, and three moles of P_2O_5. The solution is flash-dried to give a solid salt residue, which is heated to 250-600°C. A crystalline salt is formed corresponding to sodium triphosphate, $Na_5P_3O_{10}$, substantially free from sodium metaphosphate and containing tetra-sodium pyrophosphate in the amount necessitated by the content of Na_2O in excess of five moles. A similar compound is prepared giving quick solubility by heating the triphosphate to 300-450°C, using five moles of Na_2O to 3 of P_2O_5. C. S. King, to Blockson Chem. Co. Canadian Patents No. 448,105 and 448,106.

Soap Antioxidants

Soap is protected from discoloration and rancidity by addition of 0.01 to 0.5 per cent of biguanide *para-tert*-amyl phenyl phosphate. The phosphate compound is superior to other biguanide derivatives. E. W. Cook, to Am. Cyanamid Co. British Patent No. 591,836.

Sulfonate Detergent

*N*Benzyl-mu-heptadecyl benzimidazole-HCl is condensed with isopropyl alcohol in the presence of a water-splitting substance such as sulfuric acid monohydrate. The resulting compound is sulfonated and neutralized to give a crystalline powder useful as a detergent. It is useful in acid solutions. Soc. pour l'ind. chim. a Bale, Swiss Patent No. 215,567; through Chem. Abs.

Hydrobleaching Oils

Glyceride oils are bleached and hardened by hydrogenating at 200 atmospheres and from 170°C. to a temperature at which the oil is decomposed, in the presence of a mixed catalyst. W. J. Paterson, to Lever Brothers Co. U.S. Patent No. 2,437,705.

Sudsing Agent

A detergent and sudsing agent is formed having the general formula $RCOOR_1SO_3Me$, where RCO is the acyl radical of a fatty acid, R_1 is an alkylene or hydroxy alkylene radical of 2-4 carbon atoms, and Me is a metal forming a water-soluble salt. For example, a fatty acid salt such as sodium coconut-oil soap is condensed with monochlorohydrin sodium sulfonate. N. B. Tucker, to Procter & Gamble Co. of Canada, Canadian Patent No. 448,167.

Coconut Oil

The reducing sugars and albumin in coconut are suggested as acting as antioxidants for coconut oil in the kernel. Light, moisture, and heat cause the oil to hydrolyze and become rancid. Blowing hydrogen through the oil at low temperatures inhibits hydrolysis of the oil, but does not prevent deterioration entirely. T. K. Roy, S. Mukherjee, and M. Goswami, *J. Indian Chem. Soc., Ind. & News Ed.* 9, 129-34.

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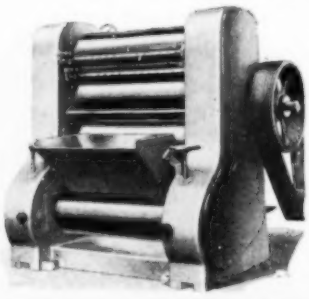

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No. 2,443,173, Paint Remover, patented June 15, 1948 by Nathaniel L. Baum and Jean Wynkoop, Los Angeles, Calif., assignors to Turco Products, Inc., Los Angeles. Calif., a corporation of California. A thixotropic water dispersible paint remover is covered comprising a thixotropic dispersion of a protein colloid in a paint remover solvent, a stabilizer for said dispersion comprising a reaction product of a base chosen from the group composed of the alkali metal hydroxides, ammonium hydroxide with an organic acid taken from the group of the soap forming saturated fatty acids, resin acids, said dispersion of the protein being in a mixture of a liquid chlorinated hydrocarbon solvent and mutual solvent modifier taken from the group of the aliphatic alcohols and water dispersed in said solvent, said liquid chlorinated hydrocarbon solvent being in preponderate proportion, and said water being in the range of about one percent to about 20 percent by weight of said thixotropic paint remover, and said dispersion being thixotropic so that on agitation said mixture is a fluid and when at rest is a gel having the property of adhering to painted surfaces without substantial running and dispersible in water so that it may be washed from a surface to which it is applied.

No. 2,444,154, Parasiticidal Composition, patented June 29, 1948 by Roy Cross, Kansas City Mo., assignor to Kansas City Testing Laboratory, Kansas City, Mo., a corporation of Missouri. Patent covers a parasiticidal composition comprising a mixture of a Florida-Georgia type fuller's earth containing a substantial amount of its natural water of hydration, a water insoluble parasiticidal material, and a salt selected from the group consisting of the water soluble salts of the alkali metals and the alkaline earth metals, said salt being in sufficient amount to substantially facilitate the dispersion of the mixture in water and improve the suspension characteristics of the dispersion thus formed, said fuller's earth having dispersion characteristics such that the dispersion in water of less than about 10 percent but substantial quantities thereof produces a dispersion having a viscosity greater than about five centipoises.

No. 2,442,652, Insecticides, patented June 1, 1948 by Theodore W. Kerr, Jr., Seymour, and Walter D. Harris, Naugatuck, Conn., assignors to United States Rubber Company, New York, N. Y., a corporation of New Jersey. Patent covers an insecticidal composition containing 2,2-bis (p-chlorophenyl) - 1,1,1 - trichloroethane and an alkenyl naphthyl ether having three to four carbon atoms in the alkenyl radical.

No. 2,442,802 Cleaning of metals, patented June 8, 1948 by Norman L. Evans, Northwich, England, assignor to Imperial Chemical Industries Limited, a corporation of Great Britain. Patent covers a process for cleaning metals and metal articles which comprises immersing metals other than zinc and zinc alloys, or articles thereof, in a fused bath containing one-10 percent by weight of alkali metal cyanide, 0.1-2% by weight of water, and the remainder principally alkali metal hydroxide, at a temperature of 300°-600°C. for between ½ and 30 minutes.

No. 2,442,653, Insecticides, patented June 1, 1948 by Theodore W. Kerr, Jr., Kingston, R. I., and Walter D. Harris, Naugatuck, Conn., assignors to United States Rubber Company, New York, N. Y., a corporation of New Jersey. An insecticidal composition is covered containing 2,2-bis (p-chlorophenyl) - 1,1,1-trichloroethane and material selected from the group consisting of alkyl naphthyl ethers having two to five carbon atoms in the alkyl radical.

No. 2,442,760 Dichlorodiphenyltrichloroethane and cyclohexyldiphenylether insecticidal composition, patented June 8, 1948 by Curtis E. Dieter and Bernard J. Thiegs, Midland, Mich., assignors to Dow Chemical Company, Midland, Mich., a corporation of Delaware. An insecticidal composition including as active toxicants a 1,1-di-(chlorophenyl) -2,2,2-trichloroethane and monocyclohexyldiphenylether is covered in the patent.

Germicidal Detergent

A cation-active agent, "Catiosan," is being made by the Onyx Oil & Chemical Company of Jersey City. It combines detergent and germicidal effects. It is suggested for such products as liquid bactericidal soaps and impregnated paper towels for dental, medical, and clinical use. A complex amido condensation product, the material is an amber paste with a fatty odor. It is compatible with acids and hard water, but incompatible with alkalis and anionic surface-active agents including ordinary soap.

Piperazine Derivatives

Coconut-oil acid monoesters of 1,4-bis(2-hydroxy ethyl) piperazine and similar esters are surface-active and useful as emulsifying agents. J. D. Malkemus. U.S. Patent No. 2,421,-707.

Acid Numbers of Oil

The acid numbers of marine and vegetable and related products may be determined by a colorimetric method. This involves use of alcoholic caustic potash, phenolphthalein, and a titration solvent consisting of 49.5 per cent of anhydrous isopropanol, 50 per cent benzene, and 0.5 per cent of water. Most oils are completely soluble in this, which avoids the disadvantages of two-phase systems and heating of the oil. The method compares satisfactorily with present official methods.

A potentiometric method, at present an A.S.T.M. Standard Method for petroleum products, has proved to be satisfactory for application to marine and vegetable oils. A close correspondence was found with a number of different oils, between acid numbers obtained colorimetrically and potentiometrically. It is therefore possible to compare directly results obtained by the two methods. S. R. Ames and S. B. Licata, *J. Am. Oil Chemists' Soc.* 25, 203-6 (1948).

Tall Oil Esters

Tall oil is heated with a mixture of an organic sulfonic acid and an amino alcohol having a primary amino group, to give an ester. D. W. Jayne Jr. and H. M. Day, to Am. Cyanamid Co. Canadian Patent No. 448,100.

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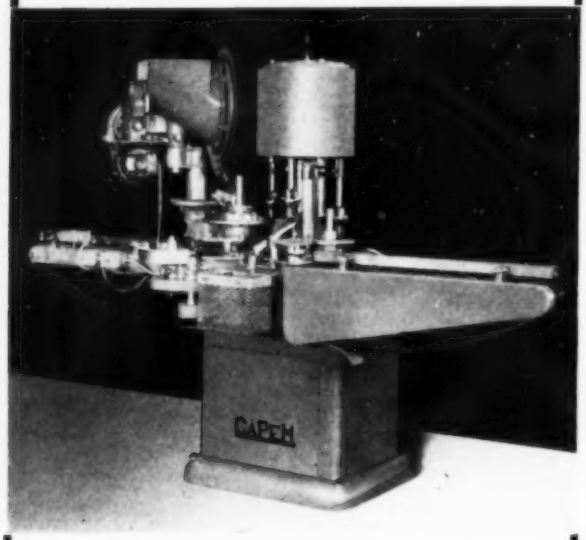

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Hard-water Detergent

Hard water can be used to improve the efficiency of detergents under certain conditions. This is accomplished by preparing a water-insoluble, colloidally-dispersed precipitate from the hard-water salts by combining them with a water-soluble phosphate which forms a quadrivalent anion. The dispersion adsorbs the soil, keeps it in suspension, and prevents its redeposition on the material to be Cleansed. Compounds which form such colloidal solutions are sodium tetraphosphates, hexametaphosphates, and similar compounds. The amount of these added should be smaller than the amount to sequester the hardness. If the detergent is to be used in soft water it is advantageous to incorporate also a sufficient amount of calcium salts to impart a hardness of 30p.p.m. to the water.

The amount of phosphate added varies but in a composition containing 65 per cent of soap and 35 per cent of other ingredients, maximum detergency was obtained with 2.5 per cent—based on the weight of soap—of tetrasodium pyrophosphate. However, five to eight per cent may be needed in some cases. When used in conjunction with synthetic detergents the amount of phosphate required is about 10 per cent. L. F. Henderson and B. L. Maxwell, to Lever Brothers Co. U.S. Patent No. 2,437,253.

Aspartic Acid Esters

Aspartic acid esters are prepared by treating a primary alkyl or alkoxyalkyl amine with at least a stoichiometric proportion of maleic acid ester under 100°C. until the reaction is substantially complete. The esters are surface active. K. L. Lynch to Am. Cyanamid Co. U.S. Patent No. 2,438,091.

Emulsifiers with Alcohol

Emulsifiers for making water-in-oil emulsions in the presence of ethyl alcohol should have hydrophilic groups internally in the molecule. Compounds with hydrophilic groups on terminal carbons were ineffective. Carboxyl, sulfo, or sulfate groups are suitable. The nature of the hydrophobic hydrocarbon residue is not important if it is sufficiently long and has a double bond. Good results were obtained with 0.25 per cent of sulfonated ricinoleic acid anilide, the butyl derivative of naphthalene suffonic acid, and similar compounds. J. Rzymskowski and J. Reitstotter, *Pharmazie* 2, 509-10; through Chem. Abs.

Reports on Surface Agents

Massachusetts Agricultural Experiment Station, Amherst, Mass., included in its 1947 annual report a certain conclusion based on a study made to determine the germicidal efficiency of surface active agents. Previous study had covered some 42 such surface active agents, but in the period covered by the latest report, several of these agents, representing three chemical groups, were studied for their germicidal properties in different concentrations against two representative types of bacteria, *Escherichia coli* and *Staphylococcus aureus*. The chemical groups represented were quaternary ammonium compounds, phosphonium compounds and aliphatic sulfonates.

"Usually a certain concentration is recommended for the use of an agent," says the station's progress report. "Results of the experiments indicate that the effectiveness of the agents varied for the different bacterial species and that a formula could be derived for each agent, showing the relationship of concentration of the agent and the dosage time for any given bacterial species.

"The results of the experiments indicate that the agents could be made more widely useful if directions for their application were made more flexible, and economy of materials might result if weaker concentrations were employed where speed of disinfecting action is not important or necessary."

Rheem Magazine Appears

Articles dealing with its research department, safety records, news of company veterans, etc. are highlights of the summer, 1948 issue of *Rheeminder*, house magazine of Rheem Manufacturing Co., New York.

Oxygen-Fat Reaction

A review is given of the advance made from 1941 through 1946 in the study of the mechanism of oxidation of fatty materials, including oxidation of monounsaturated compounds, nonconjugated and conjugated polyunsaturated compounds, and saturated compounds. Good justification is found for postulating that autoxidative attack in olefins is initiated universally, not by formation of hydroperoxides, but by addition of oxygen at the double bonds in only a few of the molecules. Subsequently, in the case of monoolefins and nonconjugated polyolefins, the attack by oxygen is continued by substitution on the alpha-methylene group to form hydroperoxides by means of chain reactions. Mechanisms for such an oxidative scheme, involving the formation of intermediate free radicals, are given.

With conjugated compounds, peroxides are formed by addition of oxygen at the double bonds, and alpha-methylene group peroxidation does not occur. Although saturated compounds are relatively inert, they also form hydroperoxides, which are converted mainly to ketones and alcohols, with ketones predominating.

Formation of polymers often accounts for the major proportion of the oxidation products of unsaturated compounds. The possibility of formation of carbon-to-carbon-linked as well as oxygen-linked polymers in the various classes of olefins is considered. D. Swern, J. T. Scanlan, and H. B. Knight, *J. Am. Oil Chemists' Soc.* 25, 193-200 (1948).

Sodium Chlorite

The chemical pharmaceutical, and bacteriostatic properties of sodium chlorite were compared with those of sodium hypochlorite. Bacteriostatic tests against micrococci, streptococci, pneumococci, *Proteus* X19, and coliform bacteria, showed that the chlorite was a little more effective than hypochlorite. G. Carraz, Ch. Puthod, G. Dodane, and Galline, *Produits Pharm.* 2, 539-41.

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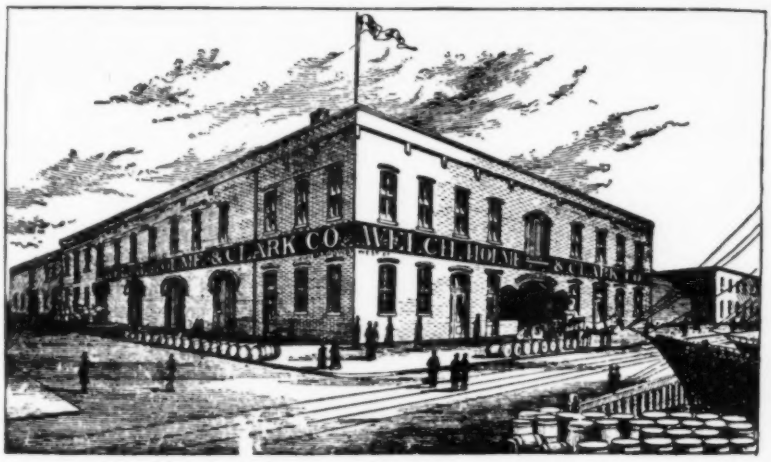

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WELCH, HOLME & CLARK IS 110

One of the oldest soap supply firms honors its president for 50 years service with the 110 year old company

ONE of the oldest chemical supply firms in the United States recently honored one of the oldest men in the chemical field from the standpoint of years of service when Welch, Holme & Clark Co., New York, tendered a luncheon at the Waldorf-Astoria Hotel, July 30, for Elias D. Stults, president of the company, who has been with WHC for 50 years. At the luncheon, to which some 55 friends and employees of the firm were invited, Mr. Stults was presented with an engraved silver water pitcher for his home and a framed, engrossed scroll for his office. Mr. Stults joined Welch, Holme & Clark, then located in a water-front warehouse at 383 West Street, New York, in 1898 as an office boy. He was 16 years old at the time. Later, he became a salesman for the firm and in 1922 was elected to the board of directors, serving as secretary of the corporation. In 1928 he was elected vice-president and in the following year became president. Mr. Stults is an active member of the Oil Trades Associations of New Jersey and New York, the New York Board of Trade, the Chemists Club and the Mayor's committee for Greater New York's Golden Jubilee.

As Mr. Stults celebrates his 50th year with the firm, Welch, Holme & Clark is marking its 110th year, having been founded by Oliver Loveland in 1838 as O. Loveland, Son & Co. Originally, the company dealt mainly in lime, cement and building materials, later on, in 1858, it began its long association with the soap industry, which it supplied with lime for causticizing soda ash. In 1858, the Welsh name became associated with the business. P. A. Welch was the son-in-law of Oliver Loveland and conceived the idea of supplying the soap industry with other raw materials besides lime. From this WHC grew to become one of the most widely known suppliers of raw materials to the soap industry. Among the company's treasured papers are several orders dating back to 1875 when caustic soda was selling for $4.60 and payment was in Gold.

In spite of its many changes in ownership and personnel throughout the years, Welch, Holme & Clark remained a family affair. When the Lovelands retired, Welch remained sole member. Feeling the need in the firm of a man who was well-acquainted with soap makers, he asked the young bookkeeper, Henry Holme, whose father was a retired soapmaker, to join. Together they borrowed money, bought out Loveland's share, and changed the company name to P. A. Welch & Co. In 1870 the name was changed to Welch, Holme & Clark; and Holme's retired father was also added to the partnership.

In the years that followed, A. M. Sherrill and his son, Howard, became partners and presidents. Mr. Clark succeeded them as head of the firm until 1929 when Elias D. Stults was elected as the seventh president. During these years the company was recording an interesting history. It was incorporated by Sherrill in the state of New Jersey and by Clark in New York. It survived the effects of panic and the Civil War; it braved two world wars and four depressions. It out-grew all its warehouses, moving from one to another until it now occupies a large building at 439 West Street, New York, as well as a warehouse in Newark, New Jersey.

Soil Removal Problems

Hard water, lime soap, and gray clothes are so intimately related that mention of one is invariably associated with the other two. While it is highly desirable to use soft or softened water in laundering, in order to save detergent supplies, and to produce better washing, sometimes insufficient softening agent is used, or a permanently installed softener will run beyond its capacity. This condition is immediately reflected in the increased quantities of detergent supplies which must be added in order to attain a satisfactory suds. If sufficient soap and alkali are added to give a good suds, it is possible to obtain good soil removal.

Contrary to the popular conception, lime soap in itself does not cause graying, since calcium and magnesium soaps are white. The graying is caused by entrained soil particles which are carried down with the hard-water soaps. Prevention of graying is dependent on keeping the inert soil in suspension, complete removal of this suspended soil without reprecipitation during washing, and efficient rinsing so that loosened dirt is not filtered out on the washed clothes.

Addition of alkali, while of advantage in many respects, must be properly handled and kept within limits, since it has been found to lower the deflocculating value of neutral soap solutions. Therefore, use of too much alkali in washing is accompanied by graying. Where graying is a problem, in general, better whiteness can be achieved by decrease in the alkali concentration and increase in the soap concentration. Penn. State College Laboratory Notes: through Canadian Research Inst. Tech. Bull. April, 1948.

Study Detergent Behavior

The osmotic behavior of anionic detergents such as the sodium and potassium salts of lauric, myristic, and oleic acids, as well as of cationic detergents of the substituted ammonium and pyridinium types, was investigated by means of a thermoelectric osmometer. The straight line for relative vapor-pressure lowering plotted against concentration, for potassium chloride, goes through the origin, representing an ideal uni-univalent electrolyte. The straight lines obtained for the detergents deviate from this ideality, and intersect the ideal curve at a concentration roughly equal to the critical concentration for micelle formation. The usefulness of the vapor-tension apparatus for studying the behavior of colloidal electrolytes is demonstrated. M. N. Fineman and J. W. McBain, *J. Phys & Colloid Chem.* 52, 881-96 (1948).

Salt Effect on Micelles

At equal sodium-ion concentrations, solutions of various sodium salts lower the critical concentration for micelle formation in solutions of sodium laurate to the same extent. The sodium salts used, which proved the point included chloride, orthophosphate, pyrophosphate, tetraborate, metasilicate, and three silicates with $Na_2O:SiO_2$ ratios of 1.6, 2.46, and 3.93. The data were obtained by the dye-titration method with pinacyanol chloride.

Measurements of the solubilization of Orange OT in dilute sodium and potassium laurate solutions at 60°C., alone and with four sodium silicates, confirmed this result. The decrease in the critical concentration for micelle formation in soap solutions due to the salt is interpreted as a common-ion effect, in accordance with the law of mass action. R. C. Merrill and R. Getty, *J. Phys. & Colloid Chem.* 52, 774-86 (1948).

California Olive Oil

Olive oil foots and sulfur oil are misnomers as applied to extracted California olive oil. In California the olive pomace is ground, dried, and brought into intimate contact with hexane, and the solvent is distilled off, leaving the extracted oil. Both batch and continuous processes are in use in California. The extracted oil is not used exclusively for soapmaking but in fact is largely used in edible oils. Soapstock results from the refining of olive oil. R. R. Lewis, *J. Am. Oil Chemists' Soc.* 24, 315-6 (1947).

Detergent Solubilization

Detergent solutions have the power of dissolving otherwise insoluble substances by putting them into or upon the colloidal micelles of the detergent. In most cases studied, addition of salt has increased solubilization. However, in the study of solubilization of octyl alcohol, salts lower the solubilizing power of the detergent. It is suggested that with this polar compound, the solubilization occurs on or between the polar ends of the micelles that are exposed to the water. Hence the salt is now in competition with the solubilized material and interferes. Salt itself is sorbed by the micelles.

Of the detergents studied, the nonionic, "Triton X-100" was the poorest solubilizer for organic liquids, while cetyl pyridinium chloride and dodecylamine hydrochloride were the best. P. H. Richards and J. W. McBain, *J. Am. Chem. Soc.* 70, 1338-42 (1948).

Washing Railroad Cars

A suitable wetting agent, plus oxalic acid or sodium bisulfate, is used with mechanical washers for cleaning railroad passenger cars. The cleaner is applied from 30 to 160 feet in advance of the mechanical brushing and rinsing, and the speed of the cars through the washer is from 60 to 90 feet per minute, with 100-300 gallons of water used per minute. The type of soil on the cars may require variation in the type of cleaner and wetting agent. G. E. Martin *et al*, Am. Ry Eng. Assoc. Bull. 469 78-80.

Fatty Acids from Foots

Good quality fatty acids are obtained from cottonseed oil foots by saponifying the foots with caustic soda, and adding 0.05-0.5 per cent of potassium persulfate or sodium hypochlorite during the boiling. The soaps are grained out, separated, and acidified. The fatty acids are then distilled under reduced pressure. H. K. McClain, to Procter & Gamble Co. U.S. Patent No. 2,435,456.

SANITARY PRODUCTS

A SECTION OF SOAP

WHEN business drops off as has been the case in certain insecticides, cleaning compounds and soap products recently,the first answer to keener competition by some firms is to cut prices irrespective of costs. In our opinion, a cut price may sell more of some retail commodities, but in the case of these sanitation necessities, we do not feel that any more is used at the lower price. Within bounds of reason, a price cut is not a real stimulant to sales, but a temporary expedient that may bring retaliation in kind, and a progressive lowering of profit margins to the vanishing point. Increased sales and advertising effort is obviously the real answer.

CONSIDERATION of the founding of a pest control institute to be supported by the industry at large has been suggested by George Hockenyos, president of the National Pest Control Association. Pointing to the work of the Baking Institute, the Laundry Institute, and the Meat Institute, the NPCA president goes on to ask if the industry is ready to organize and utilize such an institute. Coincident with the presentation of the general topic by Mr. Hockenyos, William O. Buettner, NPCA secretary, has placed several specific questions before the Association membership. Do you favor such an institute? Will you use the institute for research and allied purposes? Are you prepared to support such an institute financially?

A pest control institute has been discussed and considered for a long time.That its services could be of immense value to the industry and its members, we have no doubt. Dozens and dozens of subjects might form the basis of research projects of importance. But the main problem is one of continuing financial support. Without this, those widely-known institutes in other industries would have long since died. But, so great has been their proved value, support has been continuous. To the pest control industry, we commend the idea as progressive and of great potential value.

SUCCESS stories are dangerous. They lead innocent dopes to draw their hard-earned cash out of savings banks and plunge into business. Mostly these plungers know little or nothing about the business into which they are about to take a dive,—and the word, "dive," is not coincidental. Over the years, the number of those who have come to us for advice on how to get into the chemical specialty, soap, insecticide or similar business is legion. Experience and knowledge usually have been conspicuous by their absence. But with a fistful of money and a news clipping on how somebody else ran a shoestring into a million dollar business, they express an urge to do the same. If the subject of these success stories can do it, why can't they?

That's why we're against success stories. Only the ones who may succeed, the one in ten or so, are written up. The dozens and hundreds who rush in where angels fear to tread never make the success stories in the magazines. Just recently, we read two of this kind, one about a moth-proofer, and the other right here in these pages about a glass cleaner. We know a dozen or more of each which have been complete flops during the past ten years. And some of them had plenty of experience in the field and ample chemical knowledge.

Obviously, anybody who starts a business without long, practical experience working for somebody else in the same line is tempting providence. And though success may come, it can be fleeting. We know of two success story subjects of some ten years ago, both of whom have since gone through bankruptcy.

CHLORDANE

By J. Everett Bussart and A. Schor
Velsicol Corp.

CHLORDANE is one of the newer insecticides developed* during the war. It is a chlorinated hydrocarbon having the empirical formula $C_{10}H_6Cl_8$. Chlordane, which is the common name assigned to this product by the United States Department of Agriculture, is offered commercially as a mixture containing 60-75% of the pure compound and 25-40% of related compounds occurring in the manufacturing process. It is a viscous, amber colored liquid possessing the following physical properties:

1. Density—1.59-1.63 @ 25°C.
2. Viscosity—6900 cps. @ 25°C. (Compare to 95% glycerine @ 25°C.
3. Refractive Index—1.56-57 @ 25°C.
4. Solubility—Insoluble in water; soluble in practically all organic solvents
5. Chlorine Content—64-67%

Chlordane has a multiple effect on insects, acting as a stomach poison, a contact poison and as a fumigant. It usually acts as a stomach poison or a contact poison, although many insects are controlled by varying degrees of susceptibility to each action including the effects of fumigation. It kills as a stomach poison when used as a foliage treatment for leaf eating insects, such as grasshoppers, caterpillars, flea beetles and potato beetles. As a contact poison, it is effective against a large number of insects including roaches, flies, mosquitoes, lice, fleas, lygus bugs, carpet beetles and many others. It has also demonstrated considerable fumigant action as indicated by test on flies and stored grain insects.

Chlordane has proven its value as a control for most household insects, especially roaches, water bugs and ants. It gives effective control of these pests at a 2% concentration, and has also been very effective in the control of carpet beetles, silverfish, bedbugs and household spiders at this recommended dosage. It not only has provided a high initial kill, but has given a residual effect for at least 60-90 days.

When used as a space spray at as low as 0.2% concentration, it has given good control for flies and mosquitoes. Due to its slow knockdown action, is is usually combined with one of the knockdown agents to produce a quicker acting insecticide.

This insecticide has given phenomenal control of grasshoppers, by using ½ to 1 lb. of active ingredients per acre. These results have been obtained by the application of a dust or a spray and a residual effect has been obtained for 11-16 days. An application of 20 lbs. of a 5% dust gave a very high percentage of kill of the black field cricket attacking clover seed pods.

During the 1947 season, Chlordane gave a good control of most of the cotton pests and was especially effective on the cotton boll weevil. Apparently three to five applications per season, depending upon location, will give adequate protection to the

*Developed by Velsicol Corp., Chicago. Their product is marketed under the trade name "Velsicol 1068."

growing cotton in one season. This material gave a very high kill of the boll weevil in the squares which prevented a build-up in the population of this pest later in the season. In this way, the growers were able to produce a better grade of cotton as well as a higher yield per acre.

One of the most promising uses for Chlordane is as a soil insecticide for the control of wireworms, white grubs, cutworms, white fringe beetle and Japanese beetle. Tests seem to indicate that 2½ lbs. of active ingredients per acre will give almost 100% control of wireworms when the material is worked into the soil. The larvae of Japanese beetle working on the roots of plants, especially grass, have been controlled by an application of 10 lbs. per acre. Preliminary tests indicate that a surface application on the ground will kill most species of cutworms. As an additional point of interest, this material has effectively controlled the mole crickets attacking golf greens in some of the Southern states.

Chlordane is one of the most promising of the newer insecticides for the control of animal or livestock pests. Concentrations as low as 0.-25% have given control of lice, ticks, fleas, horn flies, stable flies and Tabanid flies as well as giving protection from these pests for some time, depending upon the temperature and rainfall. Ticks have been controlled in wooded places, as along roadsides, by an application of 1 lb. per acre. These results have been obtained by an application of a dust or a spray. The plum curculio has been controlled by applications of Chlordane when used at the rate of 1 lb. active ingredients in 100 gallons of water.

Chlordane is very effective in the control of many vegetable insects such as potato insects and many others. This insecticide has given good control results of cucumber insect pests, such as the cucumber beetles and squash bug. Much of the test work on Chlordane has been, and still is in the experimental stage, hence final recommendations have not been established for all insect pests.

Chlordane has been widely used with little or no injury to plant life. It has been used safely on cucurbits, which are usually susceptible to chemical injury. There have been reports of increased growth in plants after a Chlordane treatment, but no actual reason for this has been established.

The toxicity of Chlordane to humans is about equal to that of DDT when considered on an equal weight basis. However, Chlordane formulations are usually of lower concentration and in this way the chance for ill effects to the person making the application is reduced.

A review of one of the newer insecticides that has proved its effectiveness for many uses

OF practical importance to the processor of insecticidal products are the properties of Chlordane which determine the methods by which insecticidal formulations can be prepared. Physically, Chlordane is a dense, viscous material. However, its viscosity can be reduced by gentle heat (120-140°F.) to such a consistency that it can be sprayed or atomized by air pressure. It is completely miscible in all proportions with aliphatic and aromatic hydrocarbon solvents, including deodorized kerosene, a solvent commonly used in the preparation of household and institutional formulations. Solutions of Chlordane are light in color and transparent, and in addition the solution is non-staining which permits its use in a variety of interior situations. Surfaces treated by an oil solution are not characterized by an untidy appearance which is usually the case when powders are used. Instead, the surfaces are covered by an invisible oleoresinous film of the insect toxicant. In common with other chlorinated hydrocarbons, Chlordane dehydrohalogenates in the presence of alkaline reagents with a subsequent loss of insecticidal activity. For that reason it should not be formulated with any solvent, carrier, diluent or emulsifier which has an alkaline reaction.

Chlordane can be formulated for use as an oil solution, an emulsion concentrate, an insecticidal dust or a wettable powder. Oil solutions are used almost exclusively for household or institutional pest control applications, and it is necessary to use the other types of formulations for agricultural purposes to eliminate the phytotoxic effects of large quantities of hydrocarbon oils.

The sample formulations given below are based on both the results of experimental research studies conducted by Velsicol-sponsored fellowships and on discerning observations made during practical conditions of use of the product.

In manufacturing dust preparations containing Chlordane, it is advisable to formulate a 40 or 50% by weight dust concentrate and to cut back the dust concentrate with an inert diluent to provide a finished dust containing the desired concentration of insect toxicant. In preparing the dust concentrate, an absorbent type carrier such as diatomaceous earth should be used. The impregnation process can be carried out in the usual type of ribbon blender. A weighed quantity of the absorbent carrier is placed in the blender, and an equal weight of the insect toxicant (heated to 120-140°F.) is sprayed by means of air pressure through a series of orifices directly on the agitated carrier. The spraying orifice should be designed to deliver a finely atomized mist which will cover a comparatively large surface of the carrier, and the orifice should be placed approximately 12-14 inches above the surface of the carrier. If the orifice is at a greater distance, the emitted droplets which cool on emission will become too viscous for homogenous blending. In addition, if the effective spraying area is too narrow, the droplets will coalesce and prevent satisfactory blending with the carrier. The dust concentrate is then processed through an attrition mill for additional blending and to reduce the particle size of any agglomerates which may have been formed

during the impregnation process.

A non- absorbent type diluent or filler such as pyrophyllite is used to "cut-back" the dust concentrate to the desired strength. A ribbon type blender can be used for the "cut-back" process. The dusts being used most extensively are those containing 5% and 10% by weight of Chlordane. For particular applications, sulfur can be used as a portion of the diluent. The finished dusts have good flowability, and the usual types of agricultural dusters (including aerial types) can be used to apply the finished dust. A typical formulation is as follows:

Chlordane	5-10% by weight
Inert Carrier	90-95% " "

A wettable powder is prepared in a manner similar to that used for preparing dust concentrates. A wetting agent (3 to 5% by weight) is added to the absorbent carrier to provide the desired wetting characteristics. A typical formulation is as follows:

Chlordane	50%
Inert Carrier	47%
Wetting Agent	3%

EMULSION concentrates containing Chlordane can be formulated with or without a solvent such as kerosene. The presence of solvent in most cases adds to the stability of the water emulsion and a lesser amount of emulsifier can be used than would be the case if a solvent were omitted.

Non-alkaline, non-ionic, oil-soluble emulsifiers should be used with Chlordane. The amount of emulsifier needed to produce a stable emulsion is from 10% to 20% based on the weight of the insect toxicant. The amount can be varied outside of these limits depending on the degree of stability desired. Also, stabilizers such as starch or dextrine enhance the efficiency of the emulsifier by retarding "creaming."

The best method of producing an emulsion concentrate is by the "soluble oil" method in which the hydrocarbon solvent is added to the insect toxicant, and the emulsifier is added to this oil solution to form a completely homogenous solution. In preparing the water emulsion the emulsion concentrate is added to the required volume of water (containing the stabilizer if desired), and this mixture is agitated vigorously to produce a homogenous dispersion. Several sample formulations are as follows:

47-49% by Weight Emulsion Concentrate
(on a 1 gallon basis)
4.0 lbs. Chlordane
0.6 lbs. Emulsifier
.6 gal. Kerosene

Each quart of this emulsion concentrate contains 1 lb. of Chlordane. The recommended acre dosage for controlling insects such as grasshoppers, etc., is from ½ to 1 lb. of the toxicant per acre. This formulation is convenient for use from that viewpoint.

50% by Volume Emulsion Concentrate
(on a 1 gallon basis)
6.6 lbs. Chlordane
0.3 gal. Kerosene
1.6 lbs. Emulsifier

One and one-quarter pints of this emulsion concentrate contain 1 lb. of the insect toxicant. Five (5) gallons of the 50% by volume emulsion concentrate will supply sufficient insect toxicant to treat 33 acres of land at the 1 lb./acre dosage.

The volume of water necessary for use with Chlordane emulsion concentrates depends primarily on the type of spray equipment available for use. In aerial application, one quart of the 47-49% emulsion concentrate diluted with 2-5 gallons of water will provide adequate acre coverage. With a ground sprayer such as a Buffalo Turbine, 8 gallons of water with one quart of the 47-49% emulsion concentrates are necessary for an acre's coverage. Other ground dispersal units require from 50 to 100 gallons of water to provide the necessary acre coverage. Space sprays or crawling insect residual type sprays are usually used for household or institutional pest control applications.

CHLORDANE will effectively control free flying insects such as flies, mosquitoes, and gnats when used as a space spray at a concentration of 0.2% by weight in a deodorized kerosene type of solvent. The addition of a commercially available knockdown agent will provide the rapid knockdown feature which is desirable in space sprays. A typical space spray formulation is as follows:

Space Spray Formulation
100 Gallon Basis:
1.5 lbs. Chlordane
3.0 gal. Pyrethrum (20.1)
96.8 gal. Deodorized Kerosene

To obtain the most satisfactory results from a space spray, it should be dispersed or sprayed in a closed room, and the room should remain closed for 15 or 20 minutes after the spraying. The above formulation meets the specifications for an AA Peet-Grady spray in that it will provide 100% knockdown of flies within 10 minutes and 99-100% kill of the flies within 24 hours.

For formulation of a household or institutional type spray which will be effective against crawling insects such as roaches (all species), carpet beetles, silverfish, ants, and household spiders, 2% *by weight* Chlordane in an insecticidal base oil is recommended without the addition of any other toxicant. This spray will not only provide a high initial kill, but it will display an active residual toxicity to prevent a re-infestation of the treated premises for a period of at least two months.

Chlordane is a residually active type of insect toxicant, a property which is essential for completely effective roach control and in addition it is not a repellant and hence will not cause a scattering of an infestation. A suggested crawling insect formulations is as follows:

Crawling Insect Spray
1 lb. Chlordane
7.4 gal. Deodorized Kerosene

Under most conditions, it is advisable to disperse this formulation as a coarse spray rather than as a finely atomized mist. Cracks, crevices, waterpipes, and the other natural habitats of the crawling insects should be treated.

While Chlordane was more expensive initially than some of the other current insecticides, its greater efficiency and the reduced prices gained through improved processes have put it on a very competitive basis.

Tests on the cotton boll weevil have shown an increase in cotton yield of 116% as compared with untreated plots. Further, fewer applications of Chlordane have been found necessary to give control of the weevil than when some other insecticides are used.

practical field test for quaternaries

By Myron W. Cucci Milk Plant Specialties Corp.

THE widespread use of quaternary ammonium compounds as bactericides for dairy and food equipment has created a need for a simple and practical test to determine the concentrations of these agents in use solutions. Du Bois in a recent paper has presented an extensive review of laboratory and field tests for "Testing the Quaternary Ammoniums" (1) Most of the methods are based on colorimetric titrations. Reference is also made to potentiometric titrations, (2) and to a modified turbidimetric method. (3)

More recently Gain and Lawrence have reported "A Rapid Method for Estimation of Use-Dilution Concentrations of Quaternary Ammonium Germicides" (4) and Flanagan, Drennan and Goetchius have reported a method for "Determining Quaternary Content in Sanitizing Solutions" (5). Both methods are turbidimetric and, therefore, subject to the usual criticisms of subjectivity, variation in particle size, temperature effects, etc.

A method which eliminates part of the difficulties encountered with the turbidimetric tests is that of Harper, Elliker, and Mosley (6). In this method the bright red precipitate which forms between eosin yellowish and the quaternary is treated with an anionic surface active agent until the red color disappears. The procedure thus resolves itself into an indirect titration, and thereby makes use of an unavoidable expedient: a third variable, the anionic surface active agent.

THE work presented in this paper is based on Botwright's colorimetric titration method using bromphenol blue as indicator. The author has substituted a tablet containing the necessary active ingredients in place of Botwright's aqueous buffer, and has substituted chloroform for ethylene dichloride to extract the indicator-quaternary complex. The test to be described depends upon two principles:-

(a) High molecular weight quaternary ammonium ions form colored complexes with sulfonphthalein indicators; (1) and (b) many of the indicator-quaternary complexes can be extracted from aqueous solutions by organic solvents. The procedure is to add one tablet to a 15 ml calibrated test tube and dissolve it by mixing with one ml of ordinary tap water and three ml of chloroform. The two phase mixture is then titrated with the use solution of quaternary ammonium compound.

At the beginning of the titration the purplish-red color due to the presence of indicator is seen only in the upper water layer, wheras the lower chloroform layer is colorless. During the titration as the blue indicator-quaternary complex is formed it is extracted by the chloroform and, thus, colors the lower layer. At the end of the titration the upper water layer is colorless and the lower chloroform layer is pure blue. At the endpoint the position of the upper level of the water layer is an indication of the concentration of the use solution of the quaternary ammonium compound. In Figure 1 it is seen that if this level lies between the 100 and 200 ppm calibration marks, the use solution is assumed to be satisfactory; if it lies above the 100 ppm calibration mark it is too weak; and if it lies below the 200 calibration mark it is assumed to be too strong. The test tube was calibrated for use with only one quaternary ammonium compound at the optimum pH of approximately 3.6 as maintained by Botwright's buffer constituents. The quaternary selected was "Hyamine 1622," di-isobutyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride, as used in the trade product "Antical Super-Rinse."

The method described is, in

FIG. 1

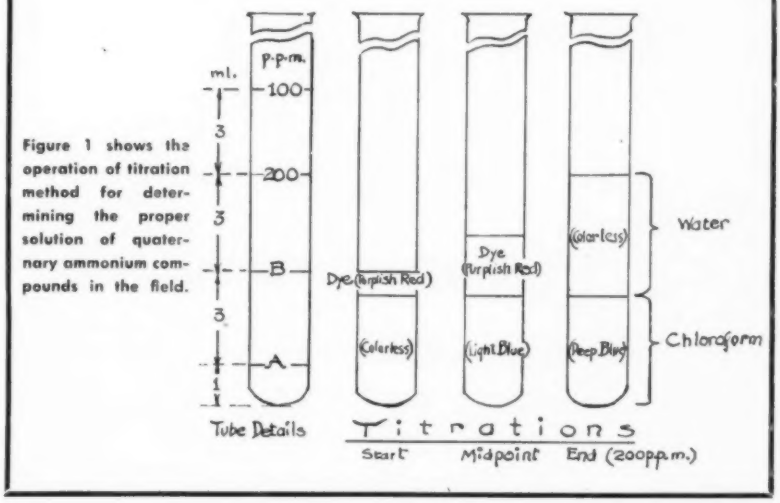
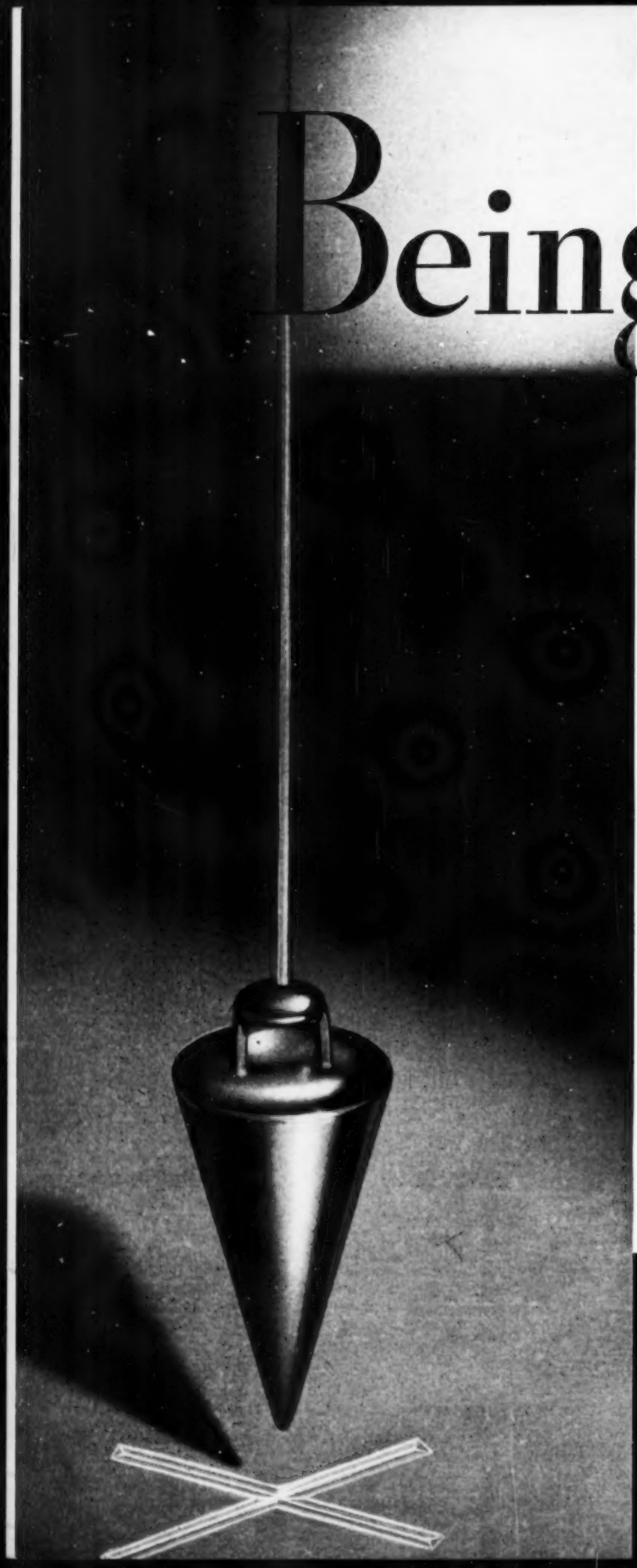


Figure 1 shows the operation of titration method for determining the proper solution of quaternary ammonium compounds in the field.

*Made by Rohm & Haas Co., Philadelphia.



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general, applicable to the high molecular weight quaternaries provided the necessary calibration is made for each compound, and that the optimum pH is determined for the extraction of the indicator-quaternary complexes. The average error in the method is approximately 6 percent as shown by the results in Table 1. This was determined by measuring a known solution of the quaternary ammonium compound (e.g. 200 ppm) from 50 ml burette into the calibrated test tube containing one ml of water, three ml of chloroform, and the dissolved tablet. At the endpoint the volume of the chloroform-water mixture is measured and its difference from the true volume for the chloroform-water mixture at the calibration mark is determined.

The advantages of the test lie in the sharp color change and in the migration of color. That is, the titration is complete not only when the color changes from purplish red to pure blue but, also, when the purplish red color of the indicator disappears from the upper water layer and "reappears" in combination with the quaternary to form a pure blue in the lower chloroform layer. Another important advantage lies in the fact that the use of a calibrated test tube eliminates the preparation of standards or the establishment of a standard reference curve.

A paper strip test is an alternate use of the method. The paper strips are prepared from rolls of ordinary soft filter paper which have been saturated with an aqueous solution of the buffered dye and allowed to dry in air. The treated strip paper gives a blue color in the presence of the quaternary at the 200 ppm concentration level, a greenish-blue color at the 100 ppm concentration level, and a light yellow color at the 50 ppm concentration level when immersed in the respective solutions for one minute. The color differences are quite distinct and easily matched on a color chart. The strip paper test is, of course, not as accurate as the test tube titration method. However, it is of sufficient accuracy to enable public health inspectors and food handlers to know whether a use solution of the quaternary is within an effective concentration range for sanitation purposes.

TABLE I

Average Error for Calibration Marks at 100 and 200 ppm of Use Solution Quaternary Ammonium Compound. ("Hyamine 1622," "Antical Super-Rinse.")

200 ppm		100 ppm	
*Volume Deviation of Use Solution	Total Volume of Use Solution to Calibration Mark	*Volume Deviation of Use Solution	Total Volume of Use Solution to Calibration Mark
0.3 ml	3.3	0.4	6.6
0.3	3.4	0.4	6.4
0.3	3.4	0.4	6.5
0.3	3.3	0.2	6.4
0.2	3.4	0.5	6.5
0.2	3.5	0.4	6.6
0.1	3.4	0.4	6.5
0.2	3.3	0.5	6.7
0.2	3.3	0.6	6.5
0.0	3.4	0.2	6.4
Mean Volume Deviation	= 0.2 ml	Mean Volume Deviation	= 0.4 ml
Mean Total Volume	= 3.4 ml	Mean Total Volume	= 6.5 ml
Average Error = 0.2 / 3.4	= 5.9%	Average Error = 0.4 / 6.5	= 6.1%

* The volume deviation is the difference between the volume of use solution at the endpoint and the endpoint and the volume of the use solution as measured at the calibration mark.

The test is applicable under ordinary pH conditions encountered in milk, food, and water sanitation. In strongly alkaline and acid solutions, violet and yellow colors respectively are produced which are not characteristic of the green-blue color range of the quaternary. Chlorine solutions do not produce a blue color on the test paper. Instead, they bleach the dye in the manner characteristic of the oxidation of organic compounds by chlorine. Milk proteins and non-ionic wetting agents as might be present in wash solutions do not interfere.

The foregoing presumes a concentration of 100-200 ppm of quaternary ammonium compounds as being a satisfactory one for the sanitizing of milk and food containers and equipment. Any other range may be developed by experimental means; it must be remembered that the combining power of the two reactants is not necessarily a straight line function, therefore, calibration at other concentration ranges should be determined by separate trial titrations.

Reagents:

1.- 100 ppm "Hyamine 1622" Solution

Transfer 1 ml of 10.0 percent "Hyamine" solution by means of a volumetric pipette to a 1000 ml volumetric flask and dilute to the mark with distilled water.

2.- 200 ppm "Hyamine" 1622 Solution

Transfer 2 ml of 10.0 percent "Hyamine" solution by means of a volumetric pipette to a 1000 ml flask and dilute to the mark with distilled water.

3.- Chloroform Reagent, The technical grade as available in pharmacies is satisfactory.

4.- Indicator—Buffer Tablet

3.70 g. Lactose
3.30 g. Disodium Hydrogen Phosphate (Anhydrous)
1.96 g. Citric acid Monohydrate
0.06 g. Bromphenol Blue

Triturate, mix with approximately 6.0 ml 95% ethyl alcohol, compress in a triturate tablet mold, remove, and air dry until tablets have hardened.

Yield=approximately 100 tablets. Average weight of tablet=0.09 grams.

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Additional Notes on the Operation of the Hoskins Caldwell Spray Chamber

By A. H. Caldwell, Jr.
California Spray Chemical Corp.

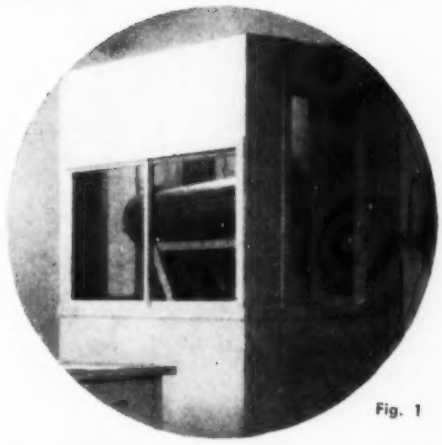

Fig. 1

SINCE the method of operating a small spray chamber was first published (1) several obvious features have been added to improve its efficiency. The chamber of Model 2 consists of a 10 by 40 inch cylinder closed at both ends with hinged doors and set at a slight incline. A 6" x 6" x 46 inch vertical duct is attached to a 4 inch square hole in the bottom of the cylinder, three inches from the lower end and the cage compartment is in the upper part of this duct. This long duct greatly improves the down draft, thus giving a more uniform deposit. The lower end of the duct terminates in a large flat box with a single small opening. Settling vapors are trapped here to prevent them from entering the laboratory. Residual *Parathion* and benzene hexachloride fumes are eliminated by placing jars of strong alkali in this chamber.

The cage, 4 x 5¼ x 5¼ inches, is simply a plywood bottom and softwood frame. Removable cardboard lines the top and bottom and encases each upright post. The two sides and back have removable 16 mesh screens and the front is grooved for a sliding cardboard door. Wire staples secure the lining and screens. After each test the cardboard is discarded and the screens removed and washed in acetone.

The spray is directed into the upper end of the cylinder with an atomizer, filling the chamber with mist. The air is shut off as soon as the atomizer is empty and the mist slowly settles down through the cage into the duct. It is replaced by air which is pulled into the chamber through a 1½ inch hole cut through the upper part of the lower door. This action depends upon absolutely still air surrounding the apparatus. If this chamber is used in a large room, particularly with cross ventilation, there will be too many convection currents which tend to disturb the settling mist, causing it to rise and escape through the above mentioned hole, thus affecting the deposit. To avoid this condition, a small room, 30 x 48 x 90 inches, with sliding windows on either end and one side is built around the chamber (Fig. 1). This is lighted and heated with a 100 watt lamp set above the glass top window. When in use, the temperature should be above 70°F. and, depending upon the outside temperature, will usually rise and remain constant at 82°F. This range of temperature is preferable for spraying. The top part of the room *must* be slightly warmer than the lower part or the mist will rise instead of settle. To obtain this the lamp should be lit at least 15 minutes before spraying begins. Heating with more than 100 watts will also upset the convection currents. Inclusion of a glass window in the lower door allows the action of the mist to be observed. When the chamber is functioning properly, a column of air is seen rushing through the open hole into the mist, replacing that which settles through the cage and duct.

Johnson and Johnson No. 2-6 inch dental rolls have been adapted as watering wicks in the test cages and are more efficient and easier to handle than the cotton wrapped tooth picks previously used. Rolls are inserted into the cages through short glass tubes and a single roll per cage provides ample drinking surface.

Reference

1. Hoskins, W. H. and Caldwell, A. H., 1947. Development and use of a small spray chamber. *Soap and Sanitary Chemicals*, 1-7 (April).

A series of symmetrical dialkyl morpholinium sulfates have been prepared. In the phenol coefficient determinations with S. *aureus*, the N-hexadecyl morpholinium series exhibited the maximum activity, reaching phenol coefficients of 500-600, depending on the pH of the solutions, with hardly any difference in the methyl, ethyl and n-butyl or n-hexyl sulfate series. Toward *E. typhosa*, the N-tetradecyl compounds showed higher activity, the phenol coefficients being about 200. Equal activities toward both Gram-positive as well as Gram-negative microorganisms were reached with the hexyl sulfate compounds. J. B. Niederl, H. W. Salzberg and J. J. Shatynski, *J. Am. Chem. Soc.* 70, 618 (1948).

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CAUSTIC SODA • PARADICHLORBENZENE • MURIATIC ACID • CHLORINE • SODIUM SULFIDE • SODIUM SULFHYDRATE

PINE OIL SCRUB SOAPS

By Adrien S. DuBois and Gloria E. Morenz*

Fuld Bros. Inc.

* Presented before the Natl. Assn. Insecticide & Disinfectant Mfrs., June 15, 1948.

This paper is the third in a series on "End-Use Laboratory Evaluation of Sanitary Chemical Specialties."

IN a recent paper (1), the senior author described various tests adaptable to the practical evaluation of scrub soap.** These procedures have been in constant use in our laboratories for over a year, in a) production control work; b) routine evaluation of commercial products, and c) research and development work. Some of the results obtained with one of these procedures, the modified Gilcreas-O'Brien detergency test, are presented.

Prior to the presentation of these results, a few remarks on the method itself are warranted. This detergency test is not claimed to be superior to the several methods described in the literature. Some of these tests may possess some particularly advantageous features. With one exception, we have not investigated them extensively. The following claims are made for the modified Gilcreas-O'Brien procedure: 1) it is extremely simple, 2) it is easily accessible, even to very small laboratories, and foremost 3) it has been found to yield results which are in complete correlation with actual practice, not only for scrub soaps, but also for wall and glassware cleaners. The third reason is sufficient to recommend the procedure for general use in our industry.

The other procedure which we have investigated is that described in a Federal specification (3). This method, when applied to scrub soaps, approximates actual practice more closely than the one used here, because it employs a sponge saturated with the detergent which is passed repeatedly over the soiled surface. Several features, however, are objectionable: 1) A 5% solution of the detergent is used. This concentration is greater than those usually recommended in practice. 2) A portion of the deter-

** In this report, the term "scrub soap" is given the connotation usual in this industry (2), namely, it is a true soap and not a synthetic detergent, containing up to about 25% anhydrous soap and about 5% pine oil, as well as small percentages of additional ingredients.

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gent solution is added gradually to the soiled surface, a condition which is also remote from actual practice. 3) The soil used is very difficult to remove from the test panel. In actual tests, we have found that ordinary scrubbing with concentrations of commercial scrub soaps known to give good detergency, did not remove the soil. Under these conditions, the soil could be partly removed only with vigorous rubbing. Hence, although the procedure has merits, it is considered to be too foreign to actual practice to provide useful data on scrub soaps.

The data presented below deal exclusively with the application of the modified Gilcreas-O'Brien detergency test to the evaluation of the influence of pine oil on scrub soaps. Although data relating to the influence of pine oil on the foaming, emulsifying and wetting powers of scrub soaps have been secured, they will not be presented here.

Pine oil, after many years of use, is still enjoying a very widespread popularity in the scrub soap industry. Examination of a commercial product containing pine oil revealed a disturbing influence of pine oil sufficient to warrant determining whether the use of pine oil is justified or whether it is merely a "tradition with those skilled in the arts."

A review of the literature of the past 15 years did reveal some information on the use of pine oil as disinfectant, fungicide, and 3 or 4 references dealing with wetting properties. However, significantly, not one reference was found dealing with its influence on the detergency of scrub soaps. An excellent review (4) on the use of pine oil in the textile industry has been published. Parenthetically, we wish to make clear that our results do not, in any way, reflect upon the value of pine oil in the textile industry. Our results apply to an entirely different field, where we believe along with others (e.g. 5), that data obtained on textiles are not applicable.

In view of the lack of information mentioned earlier, we contacted suppliers of pine oil and asked them why they recommended the use of pine oil in scrub soaps. After much correspondence, we were finally given the following answer by one supplier: "With reference to scrub soaps containing pine oil, we have no actual data. We have, however, been advised by the trade that the detergent properties of a scrub soap are enchanced by the presence of pine oil." This is hardly a satisfactory answer, but yet, it is apparently the sole basis for advertising the use of pine oil in scrub soaps. Obviously, at least from the standpoint of that one company, mere acceptance by the soap maker is sufficient evidence for claiming beneficial action, and to relieve the supplier of the necessity of carrying out experimental work to substantiate their advertised claims. It is hard to conceive, in this "enlightened" age that a supplier could adopt such an attitude. This situation is analogous to that mentioned in an earlier publication (1), namely that suppliers of raw materials to the sanitary chemical field do not gather data applicable to that field. Ours has been a field which, although quite lucrative for the supplier, has had little consideration in their development research. Is it not logical to ask that this situation be remedied? Again, it must be asked that the suppliers shoulder their fair share of the burden of research.

Although the criticism is directed to the suppliers, it is probable that our industry may have to accept a share of the blame for allowing this situation to develop. It is only through the efforts and insistence of members of this industry, acting individually and or as a body, in collecting data, establishing and standardizing nomenclature and test procedures, that the situation may be corrected.

TABLE I

Detergency (% soil removal) by a neutral soap

% soap	Dilutions tested			
	1:256	1:128	1:64	1:32
20	90	95	95	100
10		85	95	100

THE soap used in all our tests was a neutral, potash soap (mostly oleate) containing 20% anhydrous soap. The oil used in making up the soap had the following constants: Free fatty acids, 97%; Iodine number, 155; Titre, 5°C.

The reproducibility of the results of the detergency test used is indicated by the data presented in Table I, which are all averages of at least 4 determinations.

When it is remembered, for instance, that a 1:256 dilution of a 20% soap is equivalent to a 1:128 dilution of a 10% soap, etc., then it is striking how closely the results agree. From this data, it can be estimated that the procedure is accurate to at least ± 5%.

Table II presents data on a 2-component system, made up of 20% soap to which various percentages of pine oil were added.

The data below indicate that pine oil influences the detergency of a neutral soap, depending upon its concentration. Most striking is the influence of the addition of 1% pine oil, which causes a very marked reduction of the detergency of the resulting soap, particularly at low test concentrations. As the percentage of pine oil in the soap is increased, there is a gradual increase in detergency, but even a 20% soap containing 4% pine

(*Turn to Page* 151)

TABLE II

Detergency (% soil removal) by a neutral soap containing pine oil.

% soap	% pine oil	Dilutions tested			
		1:256	1:128	1:64	1:32
20	0	90	95	98	100
	1	15	80	92	100
	2	20	85	90	100
	4	85	95	100	100
10	0	5	85	99	100
	1	5	65	75	100
	2	5	65	95	100
	4	5	75	99	100

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Insecticide *RESISTANT* Houseflies

By Robert L. Blickle,[1] Asher Capelle,[2] and W. J. Morse[3]

FLY spray tests have been conducted in the laboratory of the New Hampshire Experiment station for the past six years. During the past three years the concentration of various insecticides necessary to give approximately fifty percent mortality in housefly tests has been gradually increased. The present dosages of the insecticides used in the tests are, in some instances, as much as seven times the amount used several years earlier. This increasing resistance to insecticides appears to coincide with the introduction of tests using the gamma isomer of benzene hexachloride.

The laboratory became contaminated with benzene hexachloride soon after the work with this material was begun. As a result the housefly culture soon became reduced to a few individuals. The present culture has been developed from those survivors. Since the culture has been maintained in the same laboratory for the past three years the adult flies have been exposed to benzene hexachloride from the time they emerged from the puparia until they were used in tests or were destroyed. Such a procedure would tend to eliminate the weaker individuals, leaving the stronger ones to perpetuate the culture.

Recently part of a lot of housefly puparia from a supposedly uncontaminated source was placed in the rearing room and the flies allowed to emerge under the same conditions as do the flies of the laboratory culture. Less than five percent of the flies in the new culture survived for more than twenty-four hours after they emerged. The flies which did not survive showed symptoms similar to flies treated with benzene hexachloride.

1 Assistant Entomologist, New Hampshire Experiment Station.
2 Crop Protection Institute Investigator.
3 Research Assistant, New Hampshire Experiment Station.

Table I

	GAMMA CONCENTRATION			
	0.01	0.015	0.02	0.03
Generation	Percent Mortality			
1	39.9	65.0	86.8	—
9	6.1	23.7	49.0	—
10	17.1	59.2	69.7	—
11	14.2	37.2	41.6	—
14	—	—	34.0	—
15	—	12.5	20.2	—
16	—	—	—	56.5
17	—	—	—	47.4
18	—	—	—	44.6
20	—	—	—	34.0
23	—	—	—	29.8
25	—	—	—	11.1
28	—	—	—	6.0

The remainder of the puparia were allowed to emerge in an uncontaminated area. No mortality other than that expected during normal rearing procedures occurred. This would tend to indicate that the laboratory is still contaminated and that the laboratory flies have become resistant to benzene hexachloride.

Test Methods

FLY spray tests are conducted using a modification of the insect toximeter (O'Kane et al. 1941). The flies are confined in a circular wire cage. The cage containing the flies is then placed on a turntable rack and rotated at a constant speed. A known volume of spray is directed towards the rotating cage from an artist's air brush and under a constant air pressure. The single air brush is rigidly fixed at a definite angle and at a constant distance from the center axis of the cage. After the known volume of material is sprayed, the flies are removed from the spray cage immediately and placed

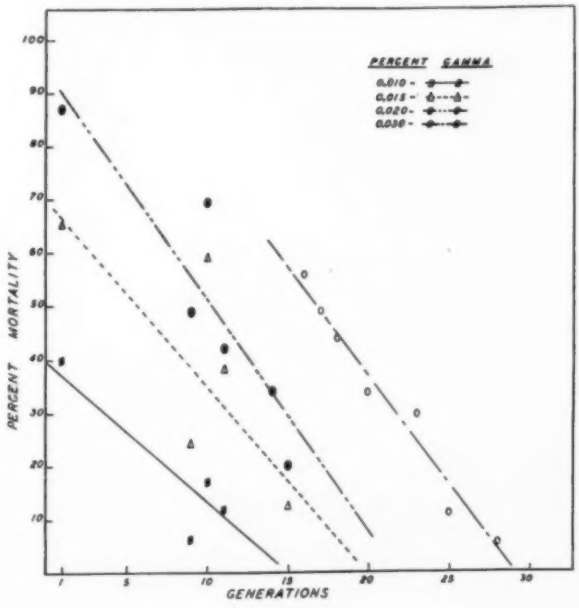

Figure 1. Increase in resistance of houseflies to benzene hexachloride for a period of 28 generations.

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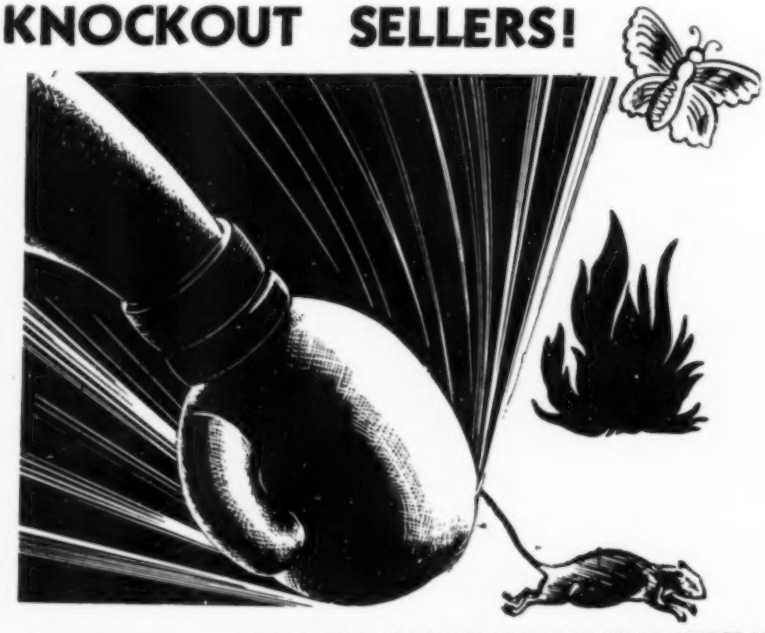

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in an observation cage. Mortality counts are made at the end of twenty-four hours. The percentage kill of both males and females is determined. The data in this work are based on the mortality of females only.

Results

DATA from benzene hexachloride tests for the past several years were compiled in an attempt to determine the increase in resistance which has developed in the housefly culture. The data cover a priod of twenty-eight generations. Eighteen days is the average time from generation to generation under the rearing conditions in this laboratory. The mortality data were analyzed on the eighteen day generation basis, thus giving reasonably comparable groups of flies. The data are summarized in Table 1. Mortality was plotted against generations and the regression lines drawn for each of the four concentrations as shown in Figure 1. This shows the trend of increased resistance from generation to generation.

Increased resistance has manifested itself in connection with insecticides other than benzene hexachloride. Toxicity data for an aliphatic thiocyante ("Lethane 384 Special")* and benzene hexachloride from tests made eighteen months ago are plotted in Figure II. The increase in resistance to the thiocyanate is approximately two times and in the case of benzene hexachloride, six times, based on dosages necessary to give fifty percent mortality. The records for the past few years did not yield enough data to enable study of housefly resistance to other insecticides for this period.

During the past several months tests were conducted comparing the resistance of the flies reared in an uncontaminated area to that of the flies in the resistant culture. Benzene hexachloride, DDT, pyrethrins, and "Lethane" were the materials used in this comparison. The data are summarized in Table II, and the mortality curves are plotted in Figure III.

(*Turn to Page* 149)

*Made by Rohm and Haas Co., Philadelphia.

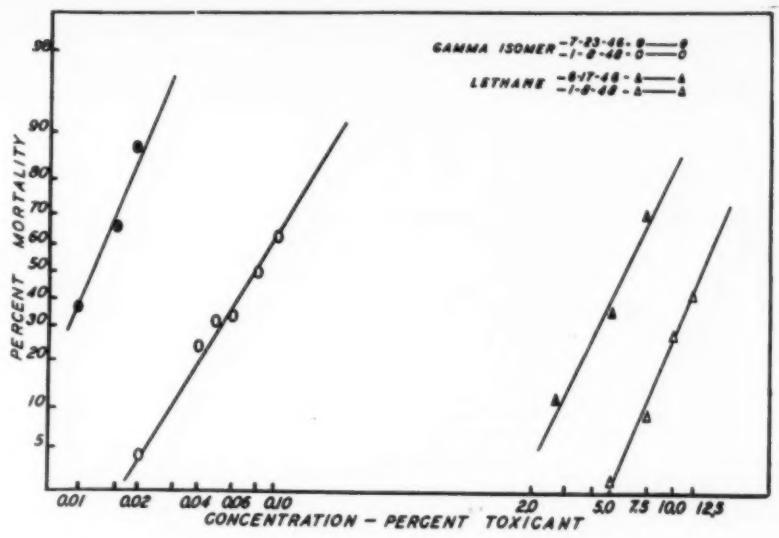
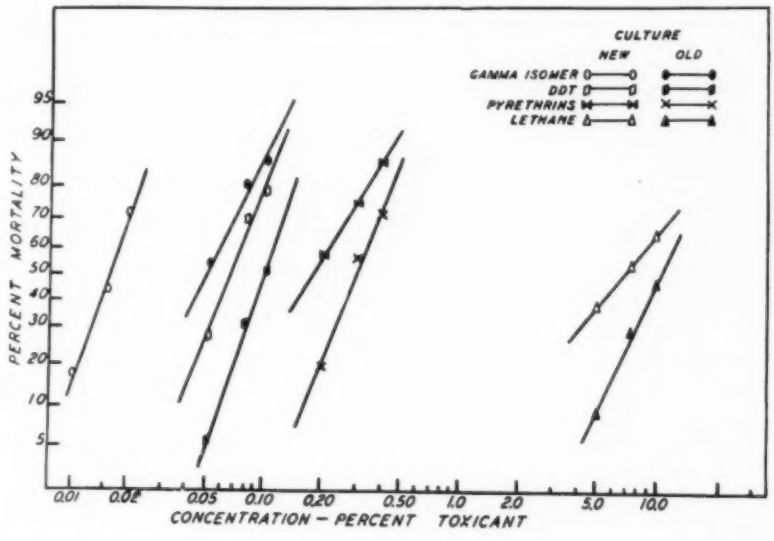


Figure 2. Comparison of the resistance of houseflies to benzene hexachloride and "Lethane" over a period of 18 months, during which time the houseflies were reared in a contaminated area.

Table II

Material	Concentration Percent	Old Culture Percent Mortality	Concentration Percent	New Culture Perreent Mortality
BHC gammas isomer ..	0.05	54.6	0.01	17.7
	0.075	81.0	0.015	41.4
	0.10	85.4	0.02	70.0
DDT	0.05	5.8	0.01	27.9
	0.075	31.5	0.075	68.2
	0.10	48.4	0.10	77.0
Pyrethrins	0.20	18.9	0.20	57.4
	0.30	55.7	0.30	74.8
	0.40	71.3	0.40	85.6
Lethane	5.0	9.1	5.0	38.0
	7.5	29.1	7.5	52.7
	10.0	45.4	10.0	63.8

Figure 3. Comparison of the resistance of houseflies from the contaminated area (old culture) and the uncontaminated area (new culture) to benzene hexachloride, DDT, pyrethrins, and "Lethane."



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The SUPER MARKET'S ROACH PROBLEM

By Dwight DeLong
Ohio State University

WITH the growth of the food market to a veritable department store or "supermarket" not only staples, canned goods and packaged goods of all types are handled, but also an abundance of meats, fresh produce and fruits, baked goods, coffee, bottled drinks, candy and tobacco, to mention a few, are sold as a major part of the business. It is not unusual for such a type of market to sell goods to the extent of $100,000 to $250,000 gross per month or an annual gross of $1,000,000 to $3,000,000.

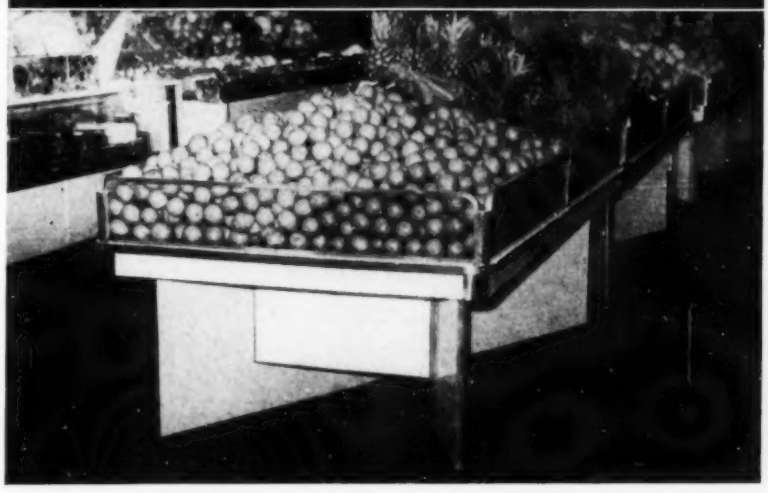
Three types of roaches are especially involved in supermarkets as pests, the German, Oriental and American. Two of these, the German and Oriental, are more common and present the greatest problem. The German is the small brownish or tan roach, both sexes of which are winged. The Oriental is a large, very dark brown roach, often appearing black in color, only the male of which is winged. This one is often referred to as the black "waterbug."

The German Roach

A STUDY of the problem to determine why German roaches are in the supermarket and why they often become abundant reveals the fact that there may be many contributory factors involved in a single or in different infestations. For instance, the kind of product, the type of package in which it was shipped, where it was stored and how long before shipment, the method of shipment from one place to another, the attractiveness of the product to roaches by moisture, temperature, odor or through seepage or spillage, and the facilities for hiding are very probable and important considerations.

To state some of these problems more specifically it has been shown that bags of potatoes and onions coming from various storage houses, frequently from the South, are usually infested with German roaches and often heavily infested. I have seen large bags (100 pounds) of both onions and potatoes emptied on the produce table at a time when the number of roaches running out of the bag surpassed the number of onions

Figure 1 (top). Older type produce table showing a box-like base—a favorable condition for roach breeding.
Figure 2 (below). Newer type produce table entirely open underneath. This type construction eliminates roach breeding conditions.



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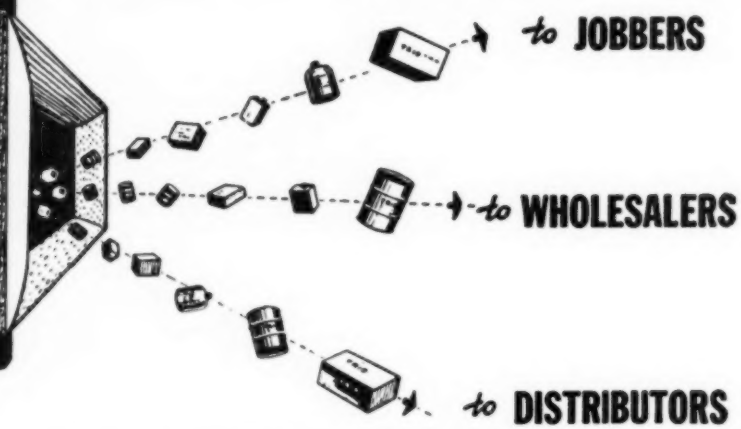

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The habits and types of roaches that infest supermarkets are taken up here

or potatoes in the bag. Frequently paper bags are used for storage of these dry vegetables and, in order to give proper aeration, these are perforated with small round holes which provide easy access to roaches while these bags are in storage. Crates of citrus fruits which are stored or shipped in a similar open condition may contain many roaches when they reach the delivery room of the supermarket, and they proceed to crawl to the outside of the crate while it is stationary and then usually to the walls and furniture and equipment of the market itself. Roaches are also commonly transported in the pads and shredded paper used in banana boxes. They often become established temporarily in these boxes.

It is a common habit where bottled beer and soft drinks are sold to refill the empty cases with returned empty bottles. When these are returned to the store in sacks, small splint baskets and often in bottle cases themselves, the bottles may contain sizeable populations of roaches, and the cases and containers in which they are returned may contain many which are attracted to the case by the spilled beer or syrup of the soft drinks. Unfortunately also when these same cases are returned to the store from the various bottlers with a new supply of bottles they bring back many roaches from the brewery or bottling plant. In a short time after they are delivered to the supermarket, roaches swarm out of the cases and literally cover the walls of the storage area. This is an important source of roach transportation and traffic in stores handling these products.

One of the attractive materials to roaches, probably due to the oils released in the roasting process, is coffee. When coffee beans are placed in paper packages, the roaches commonly crawl into the folds of these bags and are carried into the stores and become established in the coffee displays, subsequently hiding in the cracks and breeding under the coffee platforms or racks.

Roaches are attracted to and hide in cartons of jellies and preserves, in bread and baked goods in cartons of packaged cookies, cakes and crackers, and often in packaged noodles. Packaged cereals frequently prove attractive and occasionally also such packages as cigarettes.

Once they have been carried into a supermarket the roaches soon become established in certain places and begin to build populations rapidly. The roach has a definite homing instinct and many of them "nest" and breed together in these "home" areas to which they continuously return. The secret of their control is to find these abundantly occupied areas and kill these concentrated populations.

One of the favorite homing or breeding areas are the various types of scales used in the supermarket. Roaches are commonly found swarming on the immovable parts and moving about on the revolving drum or other movable parts of certain scales. Several hundred may often be found in a single scale, and frequently they actually coat or cover the inside of the metal case in which the scales are housed. The cash register is another place frequently infested and often heavily populated. Rather heavy infestations are found also under the stainless steel cappings covering the wooden arms on the fish cleaning stand.

Any place where heat is produced by friction or otherwise is an especially attractive place to roaches, even more so when this is combined with darkness and an enclosure which makes an ideal "den" or breeding spot. Especially adaptive are the tops of metal refrigerated meat cases. The lights which are just outside the glass at the top of the case furnish an abundance of heat in the shallow chamber on top of the case. When these metal tops are removed the enclosures are teeming with roaches of all sizes and egg capsules are abundant beneath these. In view of the type of construction, the hollow, perpendicular or sloping, metal pieces between the glass on the front of the case are often excellent for breeding and may become filled to a depth of several inches by egg capsules.

Another place where the roaches become abundant due to heat generated by lights, in this case fluorescent tubes, is at the top and just behind the sloping mirrors often used back of the produce racks. When especially abundant they may be massed several inches deep on the back of the mirror for the full length of the fluorescent tube. In like manner, the cracks and crevices in the motor rooms and often the walls themselves above the motors are massed with roaches. The switch boxes and the conduits leading into them as well as the telephone box are favorite breeding places.

Fresh produce is especially attractive due to its moisture content and the excess moisture frequently placed upon it. This usually causes the produce racks and tables to be infested. The tables, especially when enclosed and boxlike beneath (see Fig. 1) are ideal to harbor enormous numbers of roaches.

Any supply of piled or stored papers of any type or cellophane may become a breeding place, even more so when left undisturbed for a considerable length of time. The small pigeon-hole racks utilized for holding price tags and meat labels are frequently roach inhabited. Wall charts fastened on wooden frames to the walls of the market, and particularly when several are fastened upon each other, frequently become roach infested and serve as breeding centers. Loose molding or loose wall boards, behind which roaches may crawl and leave their body odors, soon become harbors for large populations which roam out from this center for feeding. It probably is not necessary to state further that any crack or crevice may become a potential breeding place, but only certain of these are utilized for establishment; also that roaches commonly become established around

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water supplies of any type and continuously frequent such places.

The Oriental Roach

UP to this time we have been discussing the German roach alone. The Oriental, which is also commonly found in the supermarket, is quite a different problem. They appear in conspicuous numbers at night, in the market, feeding upon materials on the floor especially, if available and seeking water When one turns on the lights at night the floor may be covered with Oriental roaches, but in the daytime they disappear. During the day they crawl into cracks in the foundation, inside concrete blocks, under furniture, or climb up behind cartons and similar packages. They are carried into supermarkets particularly by clinging to both inside and outside of cartons; in addition to this means of entrance, they often crawl into a store from an adjoining basement or through the foundation. They are most commonly found in abundance in back storage rooms, basement stockrooms, night delivery rooms, or in certain portions of the market where water is readily available or where loose platforms are built, underneath which large numbers can congregate during the daytime and crawl out through the cracks at night. The habit of feeding and activity on the floor is the secret to their prompt and effective control. A properly prepared bait which is both highly attractive and effectively toxic will give the easiest control of this species in a relatively short time.

The American Roach

THE American roach occasionally becomes a pest in supermarkets. This is a large reddish-brown species comparable to the Oriental in size, but lighter in color. Both sexes of this type are winged. This species is similar in habits to the Oriental roach and is more comonly found, when present, in stockrooms and about the meat department. It is of minor importance as compared to the other two species.

One of the major problems in roach control is to estimate in so far as possible conditions and situations which favor breeding areas. As an example, the modern produce table (Fig. 2) which is entirely open underneath is a step forward in this direction. Other construction of a similar nature will tend to reduce many permanent or probable breeding areas and will prevent or delay establishment.

Where this has not been done or is not possible, chemical controls of various types can be used to eliminate or reduce sizeable populations. The type of chemical used and the method employed will depend upon the location and the nature of the infestation. If the problem is inside of the scales or within the tops of the metal meat cases, an organic chemical having a residual value when properly formulated and applied gives an effective control for a considerable time. If the problem is in the motor room or some similar place where foods are not immediately concerned, certain types of dusts and sprays containing more toxic chemicals may be used effectively and safely providing they are confined to such areas. When the problem is on the produce rack or table, on meat cutting blocks or similar locations where exposed foods are continuously in contact with these pieces of equipment, an insecticide must be used either in liquid, powder or paste form which is non-toxic to human beings. Certain of these have been developed which greatly assist in solving the problem. Each type of problem must be studied and control measures used in accordance with the extent and nature of these infestations. There is no one chemical which is best suited for handling all these roach problems, but the various types at our disposal present a combination which is very useful in accomplishing the task at hand.

LAUNDRY SOURS

(*From Page* 40)

occasion. (2, 22) A different mixture, such as the following, (2, 5) has enjoyed wide use as a laundry sour:

Oxalic acid	1 part
Acetic acid	4 parts

As is already evident, the patent literature provides a number of improved combinations, all designed to offer superior souring properties. Some of these combinations have already been discussed, but there are other modifications that should be noted. One patented souring compound (23) consists of a silicofluoride, oxalic acid, alum and sodium chloride. Another patent (24) describes sours consisting of fluoride mixtures, with a small proportion of gelatin, as in the following example:

Sodium silicofluoride	84 parts
Sodium acid fluoride	15 parts
Gelatin	1 part

Somewhat different from the usual run of laundry sours is a patented liquid preparation (25) consisting of:

Sodium acid fluoride	50 Gm.
Ammonium silicofluoride	30 Gm.
Ammonium dihydrogen phosphate	20 Gm.
Water	1 liter

It was previously mentioned that sour and blue are often combined in one preparation. Because the advantages and formulation of such sour-blue combinations will shortly be reviewed in this publication, (26) these products will not be discussed at this time.

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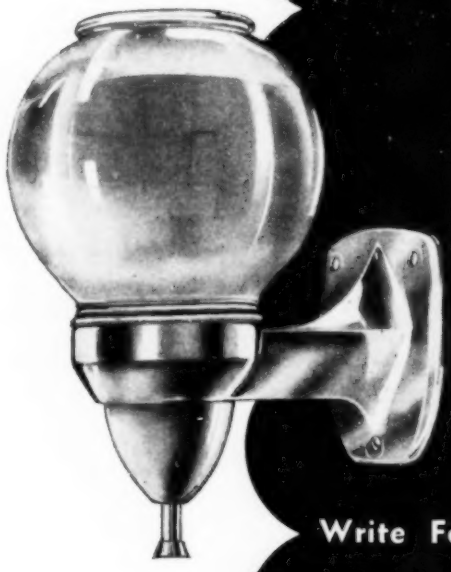

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RESISTANT FLIES

(*From Page* 141)

The results are averages of tests made on several successive days. The data indicate the general resistance of the cultures rather than the resistance of a specific group as compiled in Table I. The flies from the contaminated source were more resistant in each instance.

Discussion

RESISTANCE of various insects to insecticides has been noted (Smith, 1941). Only recently, however, has the resistance or tolerance of houseflies to insecticides been developed or noticed. A DDT resistant strain of houseflies was recently developed under laboratory conditions (Lindquist and Wilson, 1948). This group of flies was also resistant to chlordane, chlorinated camphene, pyrethrins, thiocyanates, and rotenone (Wilson and Gahan, 1948).

The DDT resistance of the houseflies considered in the present study is approximatly twice the normal resistance, based on comparison tests with flies reared in an uncontaminated area. This increase in resistance is nearly the same as that of the DDT resistant flies cited in the paper above. The housefly culture in the present work is also resistant to other insecticides although the flies have not been conditioned to other materials. This resistance to other than the conditioning materials is noted in both the DDT treated flies (Wilson and Gahan, 1948) and the benzene hexachloride resistant flies of the present study. This resistance may be due to the development of a hardier strain of flies rather than resistance to a specific insecticide. However, the increase in resistance to the conditioning insecticide in the present case was greater than the increase in resistance to other materials. This would indicate a certain amount of specific resistance to the insecticide used to increase the resistance. This was not the case when the DDT resistant flies were treated with various insecticides (Wilson and Gahan, 1948).

These tests show that housefly resistance to insecticides may occur accidentally or be brought about deliberately. This increase in resistance developed in cultures which were exposed or treated over long periods and each generation being exposed to the insecticide. Increase in resistance could possibly occur wherever widespread use of a powerful insecticide occurs.

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NEW ABRASIVE

(*From Page* 41)

it is quite easy to sample a lot of white cobs by breaking them and rejecting those with too much discoloration. The low water-solubles content of the dense, white cob particles used for the abrasive also permits their use in cake and paste soaps without discoloration or staining.

Two sizes of granules have been tested; one passing a 30-mesh screen and being retained on an 80-mesh screen, the other passing a 50-mesh screen and being retained on an 80-mesh screen. These particles are slightly more bulky than corn meal.

Preparation of cob particles suitable for use as abrasives in soaps is accomplished simply with equipment which is found in custom grinding plants. The cobs are broken in a hammer mill fitted with a screen of ¾ or ½ inch openings, depending on type of mill. This first operation loosens up the beeswing and pith which contain the major portion of the water-solubles and extractives and are of a physical character unsuited for use in soaps. These fractions are easily removed from the ground cobs by air-separation. The remaining woody fraction is then ground in a feed mill, preferably of the attrition type. Classification of the ground material is completed by the use of screens or reels. The initial grinding rates in the hammer mill are in the neighborhood of 200 pounds per horsepower-hour. The grinding rates in the attrition mill will range, depending on plate pattern and setting, from about 6 to 15 pounds per horsepower-hour.

In studies of grinding at this Laboratory, yields of grit between 20- and 80-mesh were in the neighborhood of 65 percent on the basis of the whole cob.

There are a number of rural mills in Ohio, Illinois, and Iowa presently grinding cobs. It should be possible to arrange with some of these operators to grind white cobs for hand soaps, or perhaps to interest the popcorn growers in Iowa.

Other residues such as ground pecan or filbert shells may also find use in hand soaps. In these shells most of the coloring matter is to be found in the inner paper-like lining of the shell. If shells are coarsely ground through a hammer mill that is using about ⅛-inch screen, practically all of this paper lining is loosened from the shell proper and can be removed by air-separation. The over-sized shell fragments are next ground through a hammer mill with about a 1/16-inch screen and then screened to size. These particles are somewhat harder than the white cob particles and may play a slightly different part in certain types of soaps

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TALLOW ACIDS

(*From Page 49*)

introduced. The continuous distillation-fat splitting method was first used in 1938.

Originally, red oil was removed from the valued stearic acid by the simple expedient of squeezing it out. This remains the dominant method although mechanical advances have been many. The residue is called "single pressed" stearic acid, and, by repeating the operation, double and triple pressed stearic acids are obtained. Not only is this method expensive but sharp separation of acids appears impossible. About 20 years ago, serious efforts to develop better procedures were attempted, and particularly with the object of obtaining the tallow acids in greater purity. The first commercial result was the solvent separation plant installed by Emery Industries, Inc., in Cincinnati, in 1938. A second unit was on stream three years later and the "Emersol Process" was an accomplished fact by 1942. The latter operates on the principle of controlling the crystallization of hard fatty acids by regulating the temperature of the solution, and the removal of the crystals by filtration.

Of the two tallow acids, red oil has been of greater importance to soap making. Until the early 30's, the largest single outlet for red oil was in the textile industry, particularly for the washing of wools. A significant use also developed for making non-chattering oils and lube oils. By 1940, greatest consumption was for making textile soaps, liquid and paste potash soaps, shaving soaps and creams, shampoos, and dry cleaning soaps.

When imports of lauric acid, palm and olive oils decreased so sharply in 1941, the Office of Production Management was forced to conserve the supply by restricting use. One result was to limit the quantity of whole oils available to make soap. Reluctantly, the industry turned first to the tallow acids and then to any fatty acids whatever, including those from tall oil. Supplies of red oil were inadequate and May 25, 1943, War Food Order 53 was issued. This controlled the use and distribution of red oil. Except for a few months, this control was exercised until November 1945. The war, then, broadened the consumption of red oil in soap and created uses in the fields of synthetic rubber and detergents. At the same time, the number of fatty acids was increased and the newcomers obtained a market experience in a few years that normally would take a decade or two. At present, the fatty acid industry includes the original tallow acids and many others of high purity and in sundry mixtures. Most look to the same markets, and now the whole oils are returning in force. Presumptively, the tallow acids have had their best years.

SCRUB SOAPS

(*From Page 135*)

oil shows a somewhat, although not significantly, inferior behavior to a pine oil-free 20% soap. The same considerations apply for a 10% soap. From this data it is apparent that under none of the conditions investigated does pine oil increase the detergency of a neutral soap.

The above data dealt with a more or less ideal condition, which is seldom, if ever, met in actual practice. Actually, scrub soaps generally contain more than soap and pine oil. For instance, alkaline salts, sequestering agents, neutral salts, etc. are added to impart one or more desirable characteristics to the soap. Data on a 3-component scrub soap, made up of 20% neutral soap, pine oil and a sequestering agent (sodium salt of a polyaminocarboxylic acid) are presented in Table III.

Here, the data is at a variance with data on a 2-component system and it is seen that at lower pine oil concentrations the addition of a sequestering agent improves the detergency of a neutral soap-pine oil combination. However, conversely, at high pine oil concentrations, the detergency is markedly decreased. A similar condition is observed when the third component is an alkali salt, e.g. TSP, or a neutral salt.

The results presented here were obtained on relatively simple systems. This was necessary to achieve a proper understanding of the influence of pine oil on the detergency of a neutral soap. We know, however, from practice, that it is possible to formulate a multi-component scrub soap in which the pine oil does not decrease the detergency of the base soap.

The conclusions to be drawn from the above results are: 1) pine oil influences quite often adversely, the detergency of a neutral soap; 2) the simultaneous influence of pine oil and other usual ingredients of scrub soaps is markedly different from that of pine oil alone; 3) apparently, under none of the conditions investigated, does pine oil enchance the detergency over that of a neutral soap alone.

A probably more important conclusion to be drawn from the above work is that a relatively simple procedure has proven to be very useful tool in elucidating questions of practical interest. This should be of consequence to our industry and warrants emphasizing again the desirability of establishing and standardizing test procedures particularly adaptable to our industry.

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TABLE III

Detergency of a neutral soap containing pine oil and ⅛% sequestering agent.

% soap	% pine oil	Dilutions tested			
		1:256	1:128	1:64	1:32
20	0	90	95	98	100
	1	80	100	100	100
	2	80	95	100	100
	4	15	70	75	75

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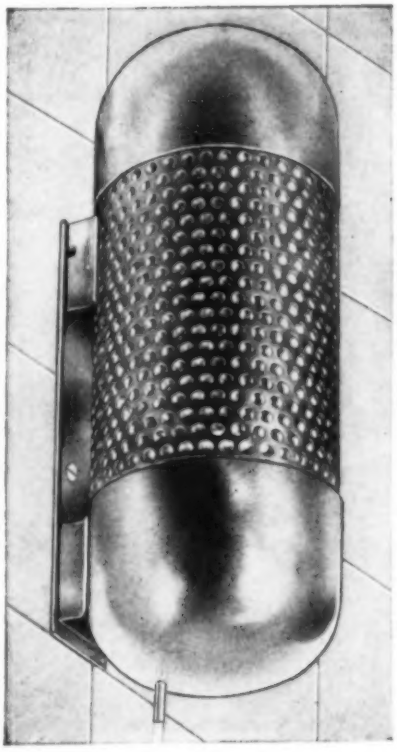

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TECHNICAL Briefs

From Current Literature in the Sanitary Products Field

Insecticidal Failure

Oxidation is a common cause of failure in pyrethrum, rotenone, phenothiazine, and DDT. Pyrethrum also fails by polymerization. These reactions are catalyzed by light. Attempts to control them with antioxidants, antipolymerization agents, and ultraviolet opacifiers have been only partly successful. E. E. Fleck, *Ind. Eng. Chem.* 40, 706-8 (1948).

Propellent Gases

A number of mixtures for low-pressure aerosols are possible in making satisfactory insecticidal aerosols. Use of these avoids the necessity for the special containers required for high-pressure propellents. Mixtures may contain combinations of the following: Chloro-and fluor-derivatives of methane and ethane such as methylene chloride, dichloro difluoro methane (Freon 12), difluoro ethane (Genetron 100), and monochloro difluoro ethane (Genetron 101). R. A. Fulton, *Ind. Chem.* 40, 699-700 (1948).

Mildewcide

Stoichimetrical proportions of 191 grams of 2-mercaptobenzo-thiazole and 209 grams of dodecylamine are heated at 250°C. to form a salt, which is a dry powder soluble in xylol, butyl alcohol, diacetone alcohol, sophorone, but not in water. Mildewing of cotton fabrics is completely prevented by the use of one per cent by weight of the salt, and the mildewing of leather is prevented by incorporating in it 0.5 per cent of its weight of the salt The salts are also useful as fungicides, disinfectants, and as antifouling ingredients in marine paints. A. Minich, to Nuodex Products Co., Inc. U.S. Patent No. 2,437,170.

Pyrethrin Synergist

An insecticidal composition contains piperine and pyrethrins in a petroleum oil spray base. Piperine, extracted from black pepper by organic solvents, markedly increases the kill of houseflies by the pyrethrins. E. Harvill, to Boyce Thompson Inst. for Plant Research, Inc. U.S. Patent No. 2,425,530.

Insect Tests with DDT

The effect of "Neocid" powder, containing five per cent of DDT diluted with talcum, was tested by putting insects into Petri dishes containing 10 milligrams of "Neocid." Death occurred in Culex after 3-4 hours, cockroaches 2-4 days, common flies 4-5 hours, bedbugs, 1-4 days, body lice 1-4 days. If the insects were kept in the Petri dishes for one minute only, almost the same results were obtained, because DDT particles adhered to the surface of the animals.

Filter paper impregnated with a fine suspension of DDT was much less effective against insects, because less of the DDT particles clung to the surface of the animals. Mice were poisoned lethally by 0.1 gram of DDT powder on their skin or in their food. Mice were killed by 6-9 milligrams of pure DDT given orally to 20-gram animals, while 3-5 milligrams was toxic, and 1 mg. without effect. DDT sticks very firmly to linen impregnated with a DDT suspension, and is removed with difficulty by washing in a warm soap solution. P. Pulewka, Turk 9 jien *Tecrubi Biol. Dergisi 7*, No. 1, 5-38; through *Chem. Abs.*

Contact Insecticides

Fluorine-containing hydrocarbons such as 2,2,2-trichloro-and 2,2,2-trifluoro-1,1-bis-(4-fluorophenyl) ethane and fluorine derivatives of the GGG—and M 410 reagent are superior to the heretofore known contact poisons. Owing to the high activity of the fluorine-containing insecticides, even in very low concentrations, they are more economical to use than the chlorine compounds. Bis(fluorophenyl) (trichloromethyl) methane in 1 per cent concentration has the same toxic effect as 10 per cent DDT-powder. Such an insecticide destroys clothes lice quicker than DDT.

When the fluorine compounds were tested pharmocologically on mice and on the author himself, no essential differences from chlorine compounds was found. Analogous to the chlorine compounds, the para position of the halogen atoms in the unsymmetrically substituted diaryl alkanes is decisive for the maximum toxic contact effect. The phenomenon that usually one or a few isomeric compounds are specially effective, led to the assumption that some kind of an "activating reaction," as in the case of enzymes, must occur before a contact effect on insects can take place. R. Riemschneider, Z. *Naturforsch.* 2b, 245-6.

Insect Repellents

Repellents for the Australian sheep blowfly were studied. The repellent effect of Ceylon citronella oil was confirmed, while Java oil was not repellent. Of the four fractions separated from Ceylon citronella by distillation, the first, third, and fourth were not repellent, while the second had a repellency equal to that of the whole oil. This fraction was subdivided into (a) a mixture of geraniol and citronellal, neither of which is replellent, and (b) an unknown substance (one-third of the whole fraction) which is highly repellent. Of

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five eucalyptus oils, three were not repellent and two were attractive. Camphor oil was not repellent, while chemically pure oleic acid was, although a commercial grade was not. Two materials containing indalone were effective repellents, as were also dimethyl phthalate and 2-ethyl-1,3-hexanediol. D. F. Waterhouse, Australia, Council Sci. Ind. Research, Bull. 218, 1-18; through *Chem Abs.*

Quaternary Compound

Quaternary ammonium compounds are made by reaction of an aromatic tertiary amine and formaldehyde, and conversion of the resultant substituted benzyl alcohol to the ether by reaction of the sodium salt of the alcohol with a long-chain alkyl halide. As obtained, these compounds are yellow to brown viscous oils or waxes. Some cannot be crystallized. All are water-soluble and bactericidal. Wm. S. Gump, to Burton T. Bush, Inc. U.S. Patent No. 2,435,583.

Control of Rat Fleas

Comparative data are presented on the effectiveness of single treatments of five and 10 per cent DDT dust applied to control rat fleas in business establishments. No significant differences could be detected over a period of three months. *Xenopsylla cheapis*, the oriental rat flea, was the predominant species present. H. P. Nicholson and T. B. Gaines, *U. S. Pub. Health Depts.* 63, 129-36 (1948).

Agent Improves Antiseptic

A wetting agent such as "Aerosol" at a concentration of 1:2000 was found to increase the antiseptic value of a number of types of antiseptics including mercury compounds, hexyl resorcinol, and dihydroxy dichloro diphenyl methane. It is believed that a chemical combination is formed between the wetting agent and the antiseptic, which is more active than the antiseptic alone. The wetting agent probably disturbs the cellular membrane, permitting more rapid and easier penetration of the toxic substances. R. Berthet, *Schweiz. Apoth. Ztg.* 85, 833-4; through *Chem Abs.*

Action of Insecticides

The mode of action of inert dusts such as slate dust, carborundum, etc., which kill insects although having no possible chemical effect on them, depends on the hardness of the powder. The particles scratch the protective water-impermeable layer on the outside of the epicuticle to that the insect dies by loss of water into the atmosphere. Such powders are effective against grain weevils in silos, but are not effective against insects such as biting lice which can replace the water loss by extra feeding until such time as damage done to their surfaces can be repaired by further secretions.

In contrast to this, DDT is a nerve poison, absorbed through the cuticle. The original theory that the para-chlorophenyl was the toxic radical, and that the CCL_3 radical conferred a high oil-water distribution ratio, was merely a theory of drug action which has long been known to be insufficient. Theories connecting drug action with oil-water partition, surface tension, vapor pressure, or other physical properties, were all derived from the thermodynamic concept of "activity." Recent work has disclosed DDT analogues in which the partition coefficient and insecticidal activity are not parallel. It has also been shown that analogues lack parallelism between activity and ease of loss of hydrogen chloride. Although these theories have some general experimental support, neither one suffices. Recourse must therefore be had to molecular shape and molecular dimensions, but so little is known of insect physiology that such recourse is qualitative and usually quite unspecific. In fact, as chemists, we do not know on what the activity of DDT rests.

Discovery of new insecticides is, of course, a joint affair of chemists and biologists. We already have more organic insecticides than can be tested in the field. The scope of new insecticides is limited. The large-scale testing is so slow, laborious and costly, that the potential advantage of a new compound must be great. Mere toxicity at very high dilution is not enough, for already the practical problem of use of derris, DDT, or benzene hexachloride is sometimes one of diluting sufficiently for ease of application. Lower toxicity to the host or to man, longer duration, or, for certain uses, faster kill would be real advantages.

It seems possible that antagonism of the Benzene hexachloride-inositol type which has been found to hold for yeasts and molds, might perhaps find use in a study of insect physiology and metabolism, and that an increasing knowledge of these biological subjects might provide fertile leads to new insecticides of novel type. R. S. Cahn, *Chem. and Ind.* 1948, 291-4.

Report on Disinfectants

A survey of recent advances in the study of antiseptics and disinfectants brings out a number of points. The specific antibacterial properties of the bile and the bile acids have been known for some time. Like other disinfectants, their action depends on the concentration. At low concentrations they are bacteriostatic and at higher concentrations bactericidal. In their antibacterial properties the bile acids are members of the anionic surface-active group which in general affect only Gram-positive organisms. Investigation of the surface activity of some of these compounds, in terms of measurement of surface tension, showed that depression of surface tension might enter in but could not be considered a critical value. When molecular concentrations were employed in the calculations, there were indications that the activity of all molecules was the same and that inhibition of growth occurred when a certain number of molecules had been adsorbed on the innoculm.

In England the limitations of the phenol coefficient are realized and its determination is not used indiscriminately for all disinfectant substances. In the absence of comprehensive characteristics a figure giving bacteriostatic activity is preferred to one offering a bactericidal value.

Quaternary ammonium compounds, being surface active, are active at dilutions where surface forces are so considerable that the accuracy and interpretation of the F.D.A. technique is upset. The problem involves more than that of determining activity of

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very potent germicides. It has been suggested that the proportion of organisms remaining after a fixed exposure time should be taken as the basis of comparison. A better procedure might be to determine the time for reduction of the number of organisms to a definite level.

A compound to be effective against common pathogenic fungi and to be reasonable nontoxic is dibromosalicyl aldehyde. This is active against *Ps. pyicyanea* as well as against other Gram-negative organisms. *Manufacturing Chemist* 19, 171-2 (1948).

Fly Rearing Method

Although the previous methods for rearing houseflies were satisfactory, a new method seems more convenient and easier. This utilizes dog biscuit moistened with yeast suspension as the larval rearing medium. Blowflies can be reared on the same medium. H. Frings, *Science* 107, 629-30 (1948).

Control of Poultry Lice

Chlordane, benzene hexachloride, and DDT were effective against three species of poultry lice. Applications were made to roosts, soil, and bodies of chickens. All applications were effective. J. T. Creighton, L. A. Hetrick, P. J. Hunt, and D. U. Duncan, *Poultry Sci.* 26, 674-51.

New Insecticide

Equal parts of an active clay such as fuller's earth, and lead arsenate are milled together, and water is added to give a paste. When dried in thin layers, the powdered product is a good insecticide. Stabilimenti di rumianca. French Patent No. 860,116.

Synergists

Methylene dioxyphenyl compounds have a synergistic effect on pyrethrum, and markedly increase the toxicity of pyrethrins to such insects as houseflies, in a mineral-oil solvent. An example is *alphaphenyl-beta*-(3, 4-methylene dioxyphenyl) acrylonitrile. M. E. Synerholm, to Boyce Thompson Inst. for Plant Research, Inc. U.S. Patent No. 2,433,491.

Pyrethrum Synergist

A new pyrethrum synergist is 2-(3,4-methylene dioxyphenyl) tetrahydropyran. The refractive index is 1.5436, and the specific gravity at 26°C. is 1.1774. Synergistic action of the compound with pyrethrum against houseflies was very marked. F. B. LaForge, to the U. S. A. U. S. Patent No. 2,434,856.

Acaricide

Application of one pint of a suspension containing six pounds of the gamma isomer of benzene hexachloride per 100 gallons, protected cattle from the paralysis tick, *Dermacentor andersoni* for two to four weeks. The compound was not injurious to the animals at this concentration. J. D. Gregson, *Can. Entomologist* 78, 201-2.

Fatty Acids as Fungicides

Fatty-acid treatment of athlete's foot takes a hint from nature by employing the physiological fungicides in human sweat in the defense of the skin against fungus and bacterial infection. The medical literature offers abundant proof that dermatitis caused by overtreatment with mercurials and phenolic compounds, together with superimposed bacterial infections and allergies, are responsible for far more suffering than the original complaint.

An effective combination contains both propionic acid and caprylic acid, as in the mixture of 12.3 per cent of sodium propionate, 2.7 of propionic acid, and 10 per cent of sodium caprylate, in an ointment base. Agar cup culture tests showed that the combination of propionates and caprylates was more effective in inhibiting the growth of Trichophyton mentagrophytes, than either fungistat alone. Clinical treatment of athlete's foot with this proved satisfactory. P. H. Van Itallie, *Drug and Cosmetic Ind.* 62, No. 4, 464-5, 543, 554 (1948).

DDT Toxicity

DDT has come into such wide use that the question of its safety is important. Significant amounts of DDT are found to be stored in the body tissues of animals, especially in adipose tissues, at levels in the diet as low as 10 p.p.m. Histopathological lesions occur in the livers of rats fed 10 p.p.m. of DDT in their diet for 2 years. O. Garth Fitzhugh, *Ind. Eng. Chem.* 40, 704-5 (1948).

Toxicity vs. Structure

The relation between chemical structure and fungicidal action was studied in a series of substituted and unsubstituted pyridinium halides in the series C_5H_5NRCl, where R is an alkyl group of chain length C_6 to C_{18}. Toxicity increased with increase of the *N*-alkyl chain length, reaching a maximum at C_{14}. Substitution on the ring showed little variation in toxicity although in general, compounds with a substituent of higher molecular weight showed the highest toxicity. No significant differences in toxicity are attributable to position of attachment or to branching of the substituent group. J. C. Lo Cicero, D. E. H. Frear, and H. J. Miller, J. *Biol Chem.* 172, 689-93 (1948).

Insecticide Diluents

Use of china clay in formulating DDT powders is said to have been largely a wartime substitute device to overcome the shortage of talc, although in liquid-suspension formulations, the hydrophilic properties of china clay give it a distinct advantage over talc. The huge post-war expansion of the insecticide industry has prompted intense research into the question of new and cheap diluents. Substantial improvement in the performance of fine-size grinding machines has enabled cheap materials to enter the field, which were previously rejected because the necessary fineness of particle size could not be obtained in commercial quantities. One such material is soft limestone, which in addition to low cost, offers the advantage of a high bulk density.

The insecticide industry is not only in a state of active expansion, it is also in a state of technical revolution. Problems like those of choice of filler, or properties desired in the ideal filler, are not entirely settled. *Manufacturing Chemist* 19, 146 (1948).

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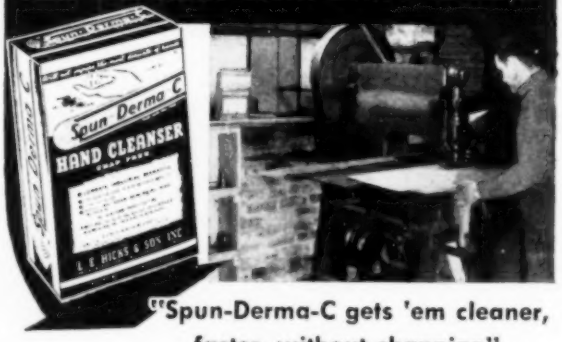

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TRADE NEWS . . .

Johnson Sales Head Retires

P. M. Petersen, vice-president in charge of sales since 1943, retired recently from S. C. Johnson & Sons, Inc., Racine, Wis., after nearly 40 years with the company. Coming to the Johnson organization as an office boy in 1908, he was appointed to the sales staff in 1918. The following year he made the first of a number of trips to foreign countries for the company. Mr. Petersen established sales agencies in China, Japan, the Philippines, Indo-China and other Asiatic countries. In 1921 he was named manager of the export department. In addition to his foreign sales activities, Mr. Petersen was also concerned with domestic selling, and in 1927 was advanced to the post of assistant sales manager, which he held in addition to his direction of foreign sales. He was made sales manager in 1937. Six years later he became sales vice-president, and in 1944 was appointed a member of the Johnson management committee.

On his retirement after almost 40 consecutive years with S. C. Johnson & Son, Inc., Racine, Wis., P. M. Petersen, vice-president in charge of sales (standing at extreme left) turns over company's organization manual to his successor, R. W. Carlson (seated) new general sales manager. Field sales manager A. O. Fisher and No. Central Regional manager, R. W. Griffith, watch ceremony.

In his retirement, Mr. Petersen is succeeded by Raymond W. Carlson, sales manager of the firm since 1944. He has been appointed general sales manager to take over the duties of Mr. Petersen. Mr. Carlson has been with the sales forces since 1931. Named district sales manager in 1936, in 1938 he became regional sales head.

Interprets Insecticide Law

A series of interpretations of the new Federal Insecticide, Fungicide and Rodenticide Act were issued July 1, by the U.S. Department of Agriculture for the guidance of manufacturers and distributors of economic poisons. The new Insecticide Law is now fully effective.

Westinghouse Ups Distler

R. E. Distler, who was formerly in charge of merchandising "Bug Bombs," aerosol insecticide bombs, made by the electric appliance division of Westinghouse Electric Corp., New York, was recently named merchandise manager of the refrigeration specialties department.

Colo. Court Rules on Hyman

The Supreme Court of the State of Colorado recently ordered that "all further proceedings" in the case of Velsicol Corp., Chicago, vs. Julius Hyman, et al. "be stayed until further order" of the state Supreme Court. A motion by Velsicol Corp. to vacate or modify the order was denied by the Colorado Supreme Court following the issuance of the stay order. It is understood that Julius Hyman & Co., Denver, the head of which is the defendant in the case involving the insecticide, chlordane, has been authorized to proceed in the usual order of its business under the supervision of an appointed court representative.

An injunction restraining the Hyman company from using processes, formulas and products covered by four patent applications on chlordane was granted by a Superior Court judge in Chicago in a separate action recently.

John Powell & Co. is 25

John Powell & Co., New York, manufacturers of basic materials for the insecticide and related industries, celebrated its 25th anniversary July 1 with a staff party in the New York headquarters, One Park Ave. The occasion also marked the birthday of the founder, John Powell. From small beginnings as an importer and dealer in crude drugs and botanicals, the company has grown to its present size, distributing and handling materials on a world wide basis. Originally, the firm was located in downtown New York, later moving uptown to 114 E. 32nd St., from which address it transferred about a year ago to its present quarters at One Park Ave.

The company was one of the first to specialize in pyrethrum insecticides and is still one of the important factors in this phase of the business. Later it began to deal in rotenone and other botanicals finally going into the synthetic organic chemical field for raw materials. The company maintains an entomological testing laboratory near the main headquarters in New York.

Acquires Test Paper

Chemiatric Corp., Sparta, N. J., recently acquired all patent rights to the Stone-Marshall test paper from Universal Chlorinator Co. The Stone-Marshall test paper is used for testing quaternary ammonium compounds in the food, dairy and allied industries.

AIFA Meets Sept. 7-9

The Agricultural Insecticide and Fungicide Association at its annual meeting, to be held Sept. 7, 8 and 9, at the Essex and Sussex Hotel, Spring Lake, N. J., will observe the 15th anniversary of its founding. Among the speakers scheduled to address open meetings Sept. 8 and 9 are, S. A. Rohwer, assistant chief, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Washington, D. C.; Dr. E. L. Griffin, assistant chief, Production and Marketing Administration, U.S.D.A., Washington, D. C.; Dr. Albert E. Hoagy, secretary-treasurer, Association of Economic Poisons Control Officials, College Park, Md.

Wax in Glass Polishes

Harry Wels, president of the Twin City Shellac Co., Brooklyn, takes exception to statements made here and elsewhere that there is no wax in any of the new type glass polishes. In a letter, he states:

"Much has been written in various magazines and newspapers claiming that there is no wax in any of the glass polishes, so widely advertised and sold under various names. We take exception to this. Our product, Dan-Dee Windowax, definitely contains genuine carnauba wax and which we claim makes for a finer product. The carnauba wax helps retard longer the fogging of glass and tarnishing of metals and silver. We also find that many of these products, while they do clean windows, do not polish metal to any degree."

Announce New Insecticide

Development of a new, non-staining insecticide that is claimed effective on a wide range of insects was announced early in August by Processed Chemical & Coatings Corp., Brooklyn. The new chemical compound, known as "CD-68," contains technical chlordane. The product is said to combine quick knockdown and a residual effect of from five weeks to two months after spraying. National distribution of the new insecticide will be handled by Thrifty Products Co., Brooklyn. Packed in pint cans, "CD-68" will be available to consumers through department and other types of retail stores. The product is furnished with either an oil base or a water emulsion base for industrial uses. It is also made up in concentrated form for dilution with water for industrial purposes.

NPCA Discusses Research

The National Pest Control Association is currently canvassing its members to determine their sentiment on the idea of setting up a "Pest Control (Research) Institute." In addition to determining if members are in favor of the idea, the NPCA is asking the extent to which they would be willing to support the plan financially. It is expected the question will be discussed in detail at the 16th annual convention of the National Pest Control Association, being held in Toronto, Oct. 18-20. The views of NPCA president, George L. Hockenyos, on research were expressed in a recent letter to the membership of the Association.

Charles Farmer Dies

Charles D. Farmer, president of Kleenaire-Kemikils, Inc., Detroit, died June 23. Mr. Farmer took an active interest in the National Sanitary Supply Association and was a member for many years. It is understood Mrs. Farmer will carry on her husband's business.

Shows New Rodenticide

A new rodenticide, that is claimed to be odorless, colorless, tasteless and non-toxic was demonstrated recently by Sparhawk Co., Sparkill, N. Y., at the Hotel Pennsylvania, N. Y. The new material, known as Atomizer" requires no gas mask or closing of air-spaces in buildings when it is applied, according to the firm.

Chem. Salesmen Golf

Pomonok Golf Club, Flushing, L. I. is the site of the Aug. 18 golf outing of the Salesmen's Association of the American Chemical Industry. The fourth and final outing of the year will be held on Wednesday, Sept. 15 at Montclair Golf Club, Montclair, N. J.

Allen Succeeds Cavanagh

Joseph A. Cavanagh, in charge of insecticide and agricultural chemicals sales for Dow Chemical Co., Midland, Mich., retired recently after 39 years with the company. He is succeeded by William W. Allen, manager of the Dow technical service and development division of the sales department. Mr. Cavanagh joined the firm in 1909 as production superintendent of the insecticide division. Later, in the early Twenties he was appointed assistant sales manager in charge of insecticides, a post which he held until his retirement.

Mr. Allen went with Dow in 1931 as a chemist in the organic research laboratory. Later, he transferred to the insecticide sales staff. He is a graduate of the University of Minnesota.

Southern Chemical Builds

Southern Chemical Co., Memphis, Tenn., janitor supply firm, is completing construction of a new building on Mississippi Boulevard that will house the firm's offices and warehouse. The brick veneered, 32 x 48 foot office area will be air-conditioned and feature panelled walls. Remainder of the 120-foot structure of steel framing with aluminum siding, will be used for warehousing. The company, which is now located at 207 Linden St., will move into its new quarters around Sept. 1.

Gena Labs in New Bldg.

Gena Laboratories, Inc., last month moved into a new, modern building at 1342 Plowman Ave., Dallas. The new quarters feature a cream-brick exterior, with glass building blocks used extensively throughout for decorative purposes. Indirect lighting is used in the modern interior of the building. The company manufactures germicides and a number of cosmetic and toiletry specialties.

Schaeffer Shortens Name

Schaeffer Bros. & Powell Manufacturing Co., St. Louis, recently shortened their name to Schaeffer Mfg. Co. The company announces that there has been no change in personnel.

Ease Insecticide Mailings

An easing of postal regulations covering insecticides, fungicides, and germicides for domestic mailing was announced recently by the Post Office Department as part of a move to unify rules governing products containing strychnine. Insecticides, fungicides, and germicides that are not outwardly of their own force dangerous and in themselves not unmailable may be mailed provided that the container is plainly labeled to show its contents, is marked "poisonous composition" and bears the label superscription of the manufacturer.

Rodenticides are not mailable, although poisoned seed used as mouse bait and similar preparations, containing not more than 0.75 percent strychnine sulphate and not containing other non-mailable substances are mailable in quantities not to exceed 24 ounces in any one parcel . . . provided the inside containers are labeled "poison" with skull and crossbones and show antidote for first aid treatment.

Preparations containing 1.5 percent strychnine sulphate, which is the maximum percentage mailable, are limited to four ounces in one parcel. Parcels containing these preparations must be marked "poison."

Vote on Westvaco Merger

A special meeting of the stockholders of Westvaco Chemical Corp., New York, has been called for Sept. 2, at which time shareholders will vote on a merger approved by the board of directors recently with Food Machinery Corp., San Jose, Calif.

New DDT Lamp Attachment

A new type lamp attachment for killing insects was introduced recently under the trade name X "Insect-O-Lite" by Avilite, Inc., Burbank, Calif. The unit which fits around a light bulb, is said to give off a DDT vapor. It retails for 97 cents. L. J. Weismantel, Houston, Tex., has been appointed national sales director for the company. Large scale newspaper advertising is accompanying the introduction of the product.

Named by Rohm & Haas

Robert C. Landon was recently appointed manager of industrial relations of Rohm & Haas Co., and

ROBERT C. LANDON

Resinous Products & Chemical Co., Philadelphia. Mr. Landon has had broad experience in the industrial and public relations field and was previously connected with Babcock and Wilcox Co. and Carnegie-Illinois Steel Corp. During 1944, he was employed by the government to reorganize the personnel functions of the Army Air Forces' Materiel Command at Wright Field, Dayton, O. Mr. Landon is a graduate of Yale University.

Wentzel Fox Lake Treasurer

At a recent meeting of the board of directors of Fox Lake Wax Co., Fox Lake, Ill., J. C. Wentzel was elected treasurer of the company.

New Hooker Compound

Recently introduced in pilot plant quantities, "p-Chlorobenzotrifluoride" (p-chlorotrifluoromethylbenzene), a new compound produced by Hooker Electrochemical Co., Niagara Falls, N. Y., can be used in the preparation of various chemicals and possibly as a solvent. It is a colorless, aromatic liquid which is characterized by the CF^3 group. This radical is generally stable to light, heat and chemical reaction. Its distillation range is 138° to 141.5°C; freezing point is—36°C; and its specific gravity at 15.5°C is 1.352. Technical data sheet No. 362 describes the product in more detail.

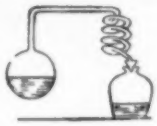
Exterminator Causes Scare

An exterminator in Jersey City, N. J., who absent-mindedly left a five-pound box of macaroons filled with arsenic and strychnine in the basement of a building where he had been working caused considerable consternation recently. Thinking he had left the poisoned macaroons in his car, the doors of which were locked, but with the windows left open, Edward Spino, head of Asiatic Exterminator Corp., Jersey City, reported to police that the macaroons had been stolen from his parked car. Believing that the macaroons had been stolen by youngsters, word was passed by radio and neighbors, warning of the danger. In the course of returning to those places where he had made calls during the day, Mr. Spino discovered the macaroons in the basement of the building where he had made his last call of the day. The box containing the macaroons was labeled "Danger—Poison," and marked with skull and cross bones.

Hints on Handling Solvents

Hints on the handling of solvents, especially by small users, are contained in a recent bulletin of Safety Research Institute, Inc., New York. Accident records indicate that trouble with solvents arises more frequently where these chemicals are used only occasionally or in comparatively small quantities than where large quantities are regularly employed. The reason seems to be unfamiliarity on the part of the small user with the need for precautions.

Check points recommended by the bulletin include studying the labels for information regarding the handling of solvents or obtaining such information from the manufacturer if it is not contained on the label; the use of closed containers for solvents; adequate ventilation where solvents are used; noticeable amount of solvent odor in the room where solvents are used indicating too much vapor in the air; wearing of solvent-resistant gloves where the hands frequently come in contact with solvents; the need to be tidy in handling solvents; careful supervision of operations involving the use of solvents; the health of workers handling solvents.



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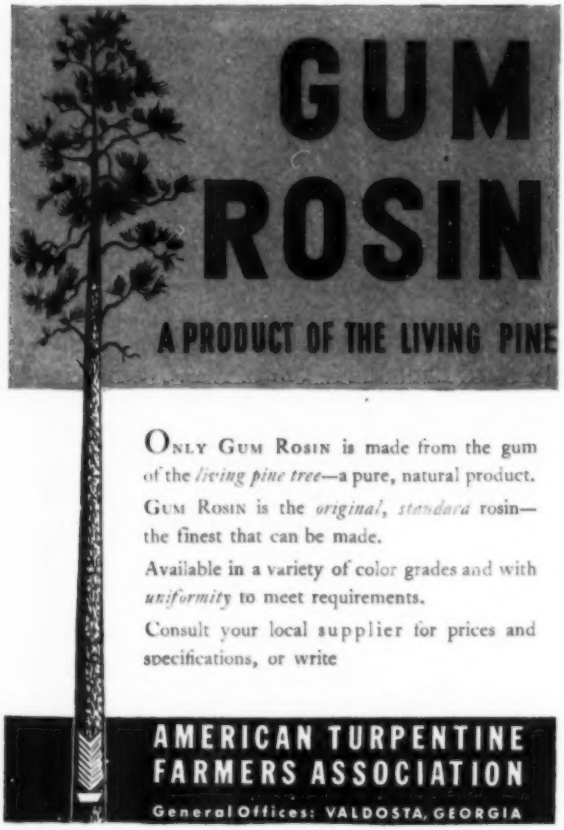

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Velodent's History Told

The story of how a manufacturer of shaving cream and tooth paste became the producer of two rat baits packed in tubes was told recently. After two fires had destroyed the factory where William Spero manufactured a dentifrice and shave cream, Mr. Spero investigated and found that rats had been responsible for the fire by gnawing the electrical wiring in the building. With the experience he had gained in manufacturing paste products in tubes, he decided to manufacture rat baits and for the first time to package such products in tubes. As a result, "Velo," containing "Antu" and "Kant-Liv" formulated with fortified red squill, were introduced recently by Mr. Spero's firm, Velodent Products Manufacturing Co., New York. In addition to his other activities, Mr. Spero is chairman of the Long Island Rat Committee, which is claimed to have staged the first rat control rally in New York.

Wilbert Has Coupon Offer

Wilbert Products Co., Inc., New York, during July mailed coupons, which permit purchasers of two of their products to get others free. Coupons were distributed for "Dot" cleanser and Wilbert's "No-Rub" floor wax. With the coupon, the the purchaser could obtain, at no extra cost, a second can of "Dot" cleanser. The floor wax coupon was good for a free bottle of "No Rub" furniture polish, if presented when purchasing the company's floor wax.

Repackages Bactericide

Pennsylvania Salt Manufacturing Co., Philadelphia, recently repackaged "B-K Chlorine-Bearing Powder," a dairy bactericide, in new amber "Duraglas" bottles made by Owens-Illinois Glass Co., Toledo. The bactericide, which has a wide application in schools, dairies and other industries, is now packaged in a wide-mouth, round glass container with blue and white lettering fused to the glass in a permanent label design. Directions for use and dilution stand out clearly in white lettering on the amber glass.

Winners of the National Sanitary Supply Association's Chicago janitor hero award receiving medals from Carl B. Lein, Lein Chemical Co., Chicago, second from left. Leo J. Kelly, NSSA executive vice-president, second from right looks on. Eight awards were made for deeds ranging from life saving to facing gangster bullets.

Hyman V. P. Honored

General Charles S. Shadle, USA ret., vice-president of Julius Hyman & Co., Denver, was recently made an Honorary Commander of the Military Division of the Most Excellent Order of the British Empire. The award was made in recognition of the service General Shadle rendered when he was in charge of all chemical warfare matters connected with Allied Forces headquarters during World War II. He is a former commanding officer of the Rocky Mountain Arsenal, Denver.

NPCA Exhibit Space

Although exhibit space is still available for the sixteenth anual convention of the National Pest Control Association, to be held Oct. 18-20, 1948 at the Royal York Hotel, Toronto, Ont., Canada, the NPCA asks that reservations be forwarded to to the National Secretary's office, 3019 Fort Hamilton P'way, Brooklyn 18, N. Y., as soon as possible. Advertising for the official program is also being solicited, and copy or reservations for space are to be sent to the same address.

Preservative for Wood Pipe

The wood preservative, pentachlorophenol, made by Dow Chemical Co., Midland, Mich., is now being used for the first time in wooden and wood-lined pipe made by Michigan Pipe Co., Bay City, Mich. Highly toxic to decay producing fungi, as well as termites and other wood-destroying insects, pentachlorophenol is nonvolatile and insoluble in water. It is also said to be free from objectionable odor. The product can be mixed with inexpensive oils possessing characteristics which permit painting after the wood has been treated. Pentachlorophenol is practically colorless in solution with light oils and does not cover the grain and color of the wood.

Sprayer Assn. Reelects

The National Sprayer and Duster Association at its annual meeting July 16-17, reelected all its present officers for the coming year. They include: president and chairman of the executive board, R. C. Hudson of H. D. Hudson Mfg. Co., Chicago; vice-president and vice-chairman of the board, Harold F. Brandt, Dobbins Mfg. Co., Elkhart, Ind.; treasurer, D. P. Lewis, H. D. Hudson Mfg. Co., Chicago; and Frank J. Zink and Earl D. Anderson of Frank J. Zink Associates, Chicago, retained as counsel and secretary, respectively.

Other members of the executive board are: R. B. Chapin, R. E. Chapin Mfg. Wks., Batavia, N. Y.; V. A. Snell, Lowell Mfg. Co., Chicago; C. D. Leiter, F. E. Myers & Bros. Co., Ashland, O.; S. H. Samuels, Standard Container, Inc., Montclair, N. J., and T. M. Burton, D. B. Smith Co., Utica, N. Y.

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Malcolm Joins Geigy

Douglas Malcolm, formerly of the sales staff of R. T. Vanderbilt Co., New York, recently joined Geigy Co., New York, in a similar capacity. Following a period of orientation with the firm, he will be assigned to a sales territory. A graduate of Hamilton College, where he majored in chemistry and biology, Mr. Malcolm served from 1942 to 1946 as a U. S. Navy pilot in the Pacific theatre.

Fuller Selling Soap

Door-to-door sales of the "Debutante" line of soaps and cosmetics made by Daggett & Ramsdell, New York, by women representing the Fuller Brush Co., Hartford, Conn., were announced recently. Four thousand women, to be known as "Fullerettes," will market the "Debutante" line. Daggett & Ramsdell was acquired from Standard Oil Co. of N. J., earlier this year by a group headed by William J. Perridge, who became president.

Repeat Perfume Seminar

The seminar on the evaluation and appreciation of perfume offered last year by Columbia University, New York, will be repeated this year, with A. L. van Ameringen of Van Ameringen-Haebler, Inc., York, in charge, it was announced recently by the College of Pharmacy of Columbia. In addition to topics covered at last year's sessions, three new subjects dealing with advertising and packaging will be discussed. Classes begin Oct. 13 at 8:00 p. m. and consist of six one hour weekly lectures followed by a one hour period of question and answer type discussion.

Perfumers Meet Sept. 15

The first regular monthly dinner-meeting of the American Society of Perfumers for the year 1948-49, will be held Wednesday evening, Sept. 15, at the Advertising Club, 23 Park Ave., New York, at 6:00 p.m. Dr. Ernest Guenther, vice-president and chief chemist of Fritzsche Bros., Inc., New York, will deliver a lecture on essential oil production in Africa. The meeting is open to members and their guests.

Marsh USI President

William P. Marsh, Jr., executive vice-president, was elected president of U. S. Industrial Chemicals,

WILLIAM P. MARSH, JR.

Inc., New York, last month. He succeeds Glenn L. Haskell, who is retiring and becomes vice-chairman of the board of directors. Mr. Marsh has been with the firm since 1937. He was elected a vice-president in 1943, made a director in 1947 and since the first of this year has been executive vice-president. A graduate of Yale in 1930, Mr. Marsh is a member of the New York State Society of Certified Public Accountants and of the Controllers Institute.

Mr. Haskell has been associated with U.S.I. since 1921, when it was known as U. S. Industrial Alcohol Co. He became a director in 1934 and president in 1943.

New Armour Soap: "Dial"

"Dial" deodorant bath and toilet soap was introduced by Armour and Co., Chicago, with a full-page, multi-color advertisement, the ink for which was perfumed with the same fragrance that is used in the soap, in the Chicago *Tribune* for Aug. 2. Approximatly 250 pounds of essential oils used to perfume the soap were mixed with the printing ink for the advertisement. It marked the first time any soap company had used a perfumed page in the *Tribune* to advertise his product. The new Armour soap is said to contain "AT-7 the only ingredient known to keep its full antiseptic power effective in soap."

Hollingshead Appointment

The appointment of William H. Weiss as divisional sales promotion and field manager of R. M. Hollingshead Corp., Camden, N. J., was announced recently by J. F. Jamison, sales director of the industrial division. Mr. Weiss will spend the greater part of his time in the territory working with "Whiz" distributors in developing their markets and training their salesmen.

Kenya Group to Visit U. S.

A delegation from the pyrethrum board of Kenya Colony, British East Africa, is scheduled to arrive in New York for a month's stay, Sept. 15. The group will make its headquarters at Greene Trading Co., New York importers of pyrethrum.

Survey Synthetics

Local hardness of water is an important factor in the sales of synthetic detergents according to a recent survey, the first in a series to be published by th Bureau of Advertising of the American Newspaper Publishers Association. The study shows the share of the soap market claimed by synthetic detergents in 13 markets. It is based on market trends of packaged soaps and synthetic detergents as shown by the continuing monthly grocery inventories conducted by newspapers in the 13 cities. Sales performance of packaged soaps for fine fabrics, general duty packaged soaps, and light and heavy duty synthetic detergents was charted.

C-P-P Sales, Earnings Off

Sales, profits and earnings of Colgate-Palmolive-Peet Co., Jersey City, N. J., for the first six months of 1948 declined, according to the company's recently issued report. Sales amounted to $111,798,297 for the first six months of '48, as compared with $132,306,711 for the comparable period of 1947, and earnings per common share were put at $2.51 for the Jan.-June period, as against $4.75 for the 1947 period. Profit after depreciation was $5,221,405 in 1948, as compared with $12,317,035 in '47 and $9,854,072 in '46.

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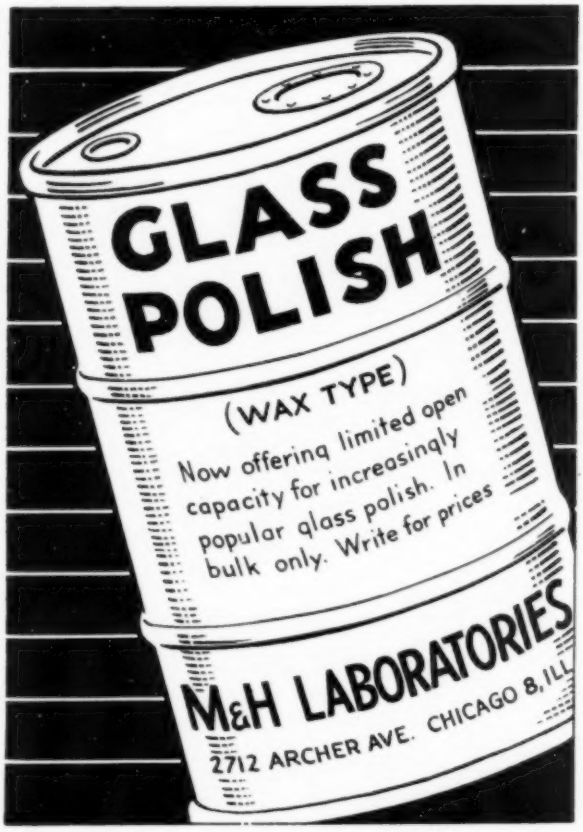
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P & G Expanding in K. C.

Procter & Gamble Manufacturing Co., announced recently that it will begin work shortly on a new $750,000 addition to its present Kansas City plant. The new project will house soapmaking units of the latest design. Equipment will include an 80-foot tower, evaporators and condensers. Another addition to the P & G plant in Kansas City is the million dollar expansion for making a synthetic detergent type washing powder. The P & G addition will be constructed on a 50 x 80 foot plot at the west end of the factory property on Kansas Ave. The plant will probably house continuous process type soap making equipment. H. K. Ferguson Co., Cleveland, is building the present addition and the newly announced one.

Colgate - Palmolive - Peet Co., Jersey City, N. J. is planning a million dollar expansion project for its Kansas City plant, it was learned at the same time. Colgate recently completed a spray tower at its Kansas City plant and will augment its present facilities with the addition just announced by E. H. Little, president, on a recent visit to Kansas City, which may turn out to be the largest soap making center in the U. S.

Darr Joins Printon

Charles W. Darr, for many years an executive of Harriet Hubbard Ayer, Inc., New York, recently joined Printon Corp., New York, as a sales representative. In his new connection, Mr. Darr will specialize on the drug and cosmetic fields. His firm covers a broad field in plastic film packaging materials, embracing rotogravure printing, coating and metalizing of cellophane, acetate, "Pliofilm," Vinyls and other plastic films and sheets.

British Mfgr. to Visit U. S.

C. R. G. Young, joint managing director of Ashe Laboratories, Ltd., London, is planning to visit the United States late in September and October to investigate the possibility of selling "Bandbox" soapless shampoo on the North American continent. While in the U. S. he will make his headquarters at Messrs. Janis & Bruell, 11 Park Place, New York 7, where communications can reach him. He would also like to discuss with American manufacturers reciprocal trading arrangements or deals whereby Ashe Laboratories could undertake the manufacture of American specialties on a royalty basis.

J. C. Thom Recovering

John C. Thom, Westvaco Chemical Division, Food Machinery & Chemical Corp., New York, recently underwent an emergency appendectomy at Lawrence Hospital, Bronxville, N. Y. He was back at his desk cary in August and reported that after a brief vacation he expected to feel fine again.

BIMS Set Golf Dates

The final golf outing of the 1948 season of the BIMS of New York will be held Tuesday, Aug. 31 at Wheatley Hills Golf Club, East Williston, Long Island. The Aug. 10 tourney of the group was held at Winged Foot Country Club, Mamaroneck, N. Y.

Information Please

One of our readers would like to have the name of the firm that manufactures a cleaning fluid under the name "Bearl Man DFT." Anyone knowing the manufacturer is asked to communicate with *Soap & Sanitary Chemicals*.

George W. Dolan Dies

Thomas S. Nichols, president of Mathieson Chemical Corp., New York, has been elected chairman of the board to succeed George W. Dolan, who died July 24 in St. Clare's Hospital, New York, at 46, after a brief illness. John C. Leppart, vice-president, elected a member of the board to fill the vacancy caused by Mr. Dolan's death, was also appointed executive vice-president. Mr. Dolan had been with Mathieson since 1930 and was elected president in 1944. He was made chairman in April of this year, at which time it was announced that Mr. Nichols and Mr. Leppart had joined Mathieson, having previously been connected with Prior Chemical Co., New York. In addition to his duties at Mathieson, Mr. Dolan was president of Bray Chemical Co., Chicago, and Southern Carbonic Co., N.Y.

CANADA SOAP

(*From Page* 47)

worth $2,930,029 in 1945. Sales of household packaged chip and flakes soaps amounted to 25,333,072 pounds, having a retail worth of $3,808,095 in 1946. Chips and flakes in bulk totaled 20,543,263 pounds, worth $1,840,816 in 1946; for 1945 the figures were 20,016,734 pounds, worth $1,715,199. Sales of chips and flakes in bulk in 1946 amounted to 18,529,607 pounds, valued at $1,879,759.

The only other soap product in the under 20 million pound per year and over 10 million pound classification is white bar laundry and household soaps, of which 13,588,437 pounds worth $954,239 pounds were produced in 1946. Other soaps for which figures are given included: textile and mill soaps, including soap chips and flakes; polishing and scouring soaps; castile soaps, boiled and cold process; shaving soaps, creams, lather and brushless types; all other hard soaps; liquid soaps, toilet and other and soft soaps.

In addition, figures are given for these products: ammonia powder; Javelle water and sodium hypochlorite; other washing compounds; hand cleaners; cleaning or scouring powders, pastes and cakes; drain pipe cleaner, toilet flush, etc.; other cleaning preparations including lye; sal soda; chloride of lime; glycerine and refined glycerine.

Imports of soaps into Canada during 1946 showed a sharp increase as compared with 1945, while exports declined something over 50 percent. Total exports in 1946 were 19,902,821 pounds worth $2,103,382, as against 42,342,874 pounds valued at $3,973,921 in 1945. Imports of laundry soap amounted to 6,065,092 pounds worth $538,637 in 1946, as compared with 2,884,502 pounds valued at $227,943 in 1945. Toilet soap imports rose from 251,209 pounds in 1945 to 745,492 in the next year.

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